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ABSTRACT

This publication contains a curriculum developed through functional job analyses for a 24-month physician's assistant training program. Phase 1 of the 3-phase program is a 6-month basic course program in clinical and bioscience principles and is required of all students regardless of their specialty interest. Phase 2 is a 6 to 10 month period of intensive training in patient evaluations and special procedures. The length of this phase depends upon the students specialty which may include family practice, pediatrics, medicine, surgery, or obsterics. Phase 3 consists of 8 to 12 months of supervised practice in the hospital, clinics, and private practitioners' offices. Included are course descriptions, objectives, and detailed course outlines for each phase. A related document is available as VT 014 651. (SB)

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THE SYSTEMS APPROACH TO FUNCTIONAL JOB ANALYSIS

Task Analysis of the Physician's Assistant

VOLUME II

Curriculum and Phase I Basic Core Courses

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CURRICULUM

NOTE: The curriculum which follows is being revised after two years of experience and evaluation. Phase I is being extended to three quarters (nine months) to give greater depth in the basic sciences, particularly pathology and pharmacology. We attempted to include considerable biochemistry and microbiology in the clinical laboratory procedures course but find it was insufficient; therefore, we are adding a course in biochemistry and a course in microbiology.

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CURRICULUM

The 24-month program is divided into three phases:

Phase I is a basic course program in the clinical and bioscience principles. It will be required of all students regardless of specialty interest and will be six months in duration.

Phase II is a period of intensive training in patient evaluations and special procedures. This training is provided by the staff of the specialty department. Each department involved has one person who is responsible for the direction and correlation of the training program. This phase will last approximately six to ten months depending upon the student's specialty choice. Students may choose Family Practice, Pediatrics, Medicine, Surgery, or Obstetrics. (Family Practice assistants will rotate through the major clinical departments.)

Phase III will consist of supervised practice in the hospital, in clinics, and in private practitioners' offices. Phase III will involve the balance of the 24-month program.

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CURRICULUM

With the identification of the functions a non-M.D. or a non-D.O. can be trained to perform (work analyses) and completion of the Functional Job Analysis, the following curriculum was developed and is now in the process of evaluation.

PHASE I
(Subsystem I of Functional Job Analysis)

First Quarter

Course		Weekly Hours			Quarter Credits
		Lecture	Lab	Practicum	
A 200	Anatomy and Physiology I	3	2	-	4
A 201	Pathology I	2	-	-	2
A 203	Medical Terminology I	1	-	-	1
A 204	Health Services and Ethics	1	-	-	1
PA 205	Clinical Laboratory Procedures I	1	3	-	2
PA 206	Pharmacology I	2	-	-	2
PA 207	Medical Instrumentation I	-	2	-	1
PA 208	Clinical Application I	3	-	3	3
PA 209	Interviewing & Counseling Techniques I	2	-	-	2
PA 210	Human Development I	2	-	-	2
		17	7	3	20

Second Quarter

Course		Lecture	Lab	Practicum	Quarter Credits
A 200	Anatomy and Physiology II	3	2	-	4
A 201	Pathology II	2	-	-	2
A 203	Medical Terminology II	1	-	-	1
A 111	First Aid & Emergencies (5 wks)	-	2	-	-
PA 205	Clinical Laboratory Procedures II	1	3	-	2
PA 206	Pharmacology II	2	-	-	2
PA 207	Medical Instrumentation II	-	2	-	1
PA 208	Clinical Application II	3	-	3	3
PA 209	Interviewing and Counseling Techniques II	-	2	-	1
PA 210	Human Development II	2	-	-	2
PA 219	Medical Records and Use of Computers in Medicine	-	-	2	-
		14	11	5	18

NOTE: All courses in the first and second quarters where possible are correlated with the course in Anatomy and Physiology on a system basis.

PHASE II
(Subsystem II of the Functional Job Analysis)

Phase II is a period of intensive training and experience in the clinical sciences. Upon the successful completion of Phase I, the student may choose to concentrate his clinical training in one of five specialties: Pediatrics, Family Practice, Internal Medicine, Obstetrics, or Surgery. Phase II varies from six to ten months depending upon the student's progress and specialty.

During this period, the students serve a basic clerkship in the major clinical departments for varying periods depending on the specialty choice. All students are required to attend a regularly scheduled conference in general clinical medicine which meets four times weekly for six months. Students are given assigned reading assignments and the class sessions are mainly in the form of student and faculty discussion of the assigned topic (outline presented later). The purpose of the clerkships is to give the student the opportunity to develop his skills and knowledge in obtaining a history, doing a physical examination, in performing and interpreting laboratory and special procedures, use of various instruments and technical procedures both in diagnosis and therapy. With the exception of Pediatrics, all of the students take the psychiatric clerkship at some time during the latter part of Phase II.

Family Practitioner's Assistant
Training Program in Phase II (9 months - 45 quarter hours credit)

Clinical Medicine Course - 4 hours per week	2 quarters
General Medicine Clerkship	2 months
General Pediatrics Clerkship	2 months
General Obstetrical Clerkship	1 month
General Surgical Clerkship	1 month
Pulmonary Disease Clerkship	1 month
Gastroenterology Clerkship	1/2 month
X-ray Clerkship	1/2 month
Cardiology Clerkship	1/2 month
Hematology Clerkship	1/2 month

Pediatrician's Assistant

Training Program in Phase II (8 months - 40 quarter hours credit)

Clinical Pediatric Course - 4 hours per week	2 quarters
Pediatric Inpatient & OPD (case assignments)	2 months
Reynolds Memorial Hospital (case assignments in Department of Pediatrics)	2 months
Health Department and Comprehensive Health	1 month
Nursery	1 month

Surgeon's Assistant

Training Program in Phase II (8 months - 40 quarter hours credit)

Clinical Medicine Course - 4 hours per week	2 quarters
General Medicine Clerkship	2 months
General Pediatric Clerkship	1 month
General Obstetrical Clerkship	1 month
Operating Room Clerkship	1 month
Special Surgical Clerkship	3 months

Internist's Assistant

Training Program in Phase II (6 months - 30 quarter hours credit)

Clinical Medicine Course - 4 hours per week	2 quarters
Special Medical Clerkship	3 months
Pulmonary Disease Clerkship	1 month
Gastroenterology Clerkship	1 month
Cardiology Clerkship	1 month

Obstetrician's Assistant

Training Program in Phase II (7 months - 35 quarter hours credit)

Clinical Medicine Course - 4 hours per week	2 quarters
General Medical Clerkship	2 months
General Pediatric Clerkship	1 month
Special Obstetrical Clerkship	4 months

PHASE III
(Subsystem III in the Functional Job Analysis)

Phase III is a period of supervised experience similar to the training received by a medical intern. Phase II melds into Phase III, when the attention of the student is directed more specifically to the content of the clinical field and to assisting, with increasing responsibility, in solving patient problems. Phase III varies from eight to twelve months, depending upon the specialty and upon the student's progress, and consists of supervised practice in the hospital, in clinics, and in private practitioners' offices. During the first part of Phase III, the student receives more intensive training in his specialty in that department in the university's medical center. The next period is a rotation through other hospitals and selected community health agencies. The final period of training is in the form of a preceptorship in a practicing physician's office. The student is continually evaluated and when weaknesses in his training appear, he is brought back to the medical center for additional training.

Family Practitioner's Assistant
Training Program in Phase III (9 months -- 45 quarter hours credit)

VA Hospital, Salisbury, North Carolina	2 months
Forsyth Memorial Hospital (E.R.)	2 months
Reynolds Memorial Hospital Department of Medicine	1 month
Winston-Salem Comprehensive Health Program	1 month
Preceptorship with practicing physician	3 months

Pediatrician's Assistant

Training Program in Phase III (10 months - 50 quarter hours credit)

Pediatric Subspecialties (cardiology, hematology allergy and neurology)	4 months
Developmental Evaluation Clinic	1 month
General Obstetrical Clerkship	1 month
Elective	1 month
Preceptorship with practicing pediatrician	3 months

Surgeon's Assistant

Training Program in Phase III (10 months - 50 quarter hours credit)

Department of Surgery - University medical center	4 months
Reynolds Memorial Hospital - Department of Surgery	1 month
Department of Psychiatry	1 month
Forsyth Memorial Hospital (E.R.)	1 month
Preceptorship with practicing surgeon	3 months

Internist's Assistant

Training Program in Phase III (12 months - 60 quarter hours credit)

Department of Medicine - University medical center	6 months
Reynolds Memorial Hospital - Department of Medicine	1 month
VA Hospital	1 month
Forsyth Memorial Hospital (E.R.)	1 month
Preceptorship with practicing internist	3 months

Obstetrician's Assistant

Training Program in Phase III (11 months - 55 quarter hours credit)

Department of Obstetrics and Gynecology - University medical center	5 months
Department of Psychiatry	1 month
Reynolds Memorial Hospital - Department of Obstetrics	1 month
Forsyth Memorial Hospital (E.R.)	1 month
Health Department - Family Planning Clinic - 2 half-days per week	(1 month)
Preceptorship with practicing obstetrician	3 months

The course descriptions, objectives, and detailed content follow.

COURSE DESCRIPTIONS, OBJECTIVES AND DETAILED COURSE OUTLINES

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A 200 I & II
ANATOMY AND PHYSIOLOGY

Course Description

Course content:	Students will be introduced in lecture to normal structure and function on a cellular level and will utilize this knowledge in gaining and understanding of organization and function of the human body on tissue, organ, and organ system levels. When relevant, clinical applications are briefly made of such acquired knowledge, e.g. relation of information to basic pathological states. The students are given the opportunity to employ their assimilated knowledge in class discussion and laboratory work. The laboratory experience introduces additional fundamentals gained by personal participation in various types of exercises.
Credits:	Four quarter credits for each of two quarters.
Instructors:	Harriet M. Ammann, M.S., Ph.D. (lecture and lab) Glenn R. Clark, Jr., B.S., M.D. (lecture and lab) Dennis L. College, B.A. (lecture and lab) Elizabeth H. Conner, B.S., M.A. (lecture and lab)
Class periods:	Three 50-minute lecture periods per week for two quarters. One 110-minute laboratory period per week for two quarters.
Methods of presentation:	Lectures, films, slides, supplemental printed materials, demonstrations and library carrel displays. Laboratory instruction includes observational and experimental exercises. Supplementary demonstrations are carried out by guest personnel and by visits to some of the medical school facilities. Basic techniques of laboratory practice are taught through utilization of programmed videotapes and through continuous film loops and sound-filmstrips.
Evaluation:	Lecture: "Pop" quizzes, announced quizzes and final examination. Lab: "Pop" quizzes, practical examinations, informal and formal oral quizzes, and written examinations.

Objectives

The student shall:

1. be able to explain normal gross anatomy in relation to underlying microscopic anatomy;
2. be able to list the normal function of cells, tissues, organs and organ systems and integrate such functions;
3. be able to discuss, utilizing his knowledge of morphology and physiology, homeostasis of the human body and how alterations in normal physiology can disturb steady states;
4. be able to apply his acquired knowledge to basic concepts regarding impairment of structure and function in relation to pathological entities.

Textbook

Crouch and McClintic. Human Anatomy and Physiology. John Wiley and Sons, Inc., New York. 1971. (Required text.)

References

Brooks. Integrated Basic Science. 3d ed. The C. V. Mosby Company, Inc., St. Louis. 1970.

Chaffee and Greisheimer. Basic Physiology and Anatomy. 2d ed. J. B. Lippincott Company, Philadelphia. 1969.

DeCoursey. The Human Organism. 3d ed. McGraw-Hill Book Company, New York. 1969.

Guyton. Function of the Human Body. 3d ed. W. B. Saunders Company, Philadelphia. 1969.

Jacob and Francone. Structure and Function in Man. 2d ed. W. B. Saunders Company, Philadelphia. 1970.

King and Showers. Human Anatomy and Physiology. 5th ed. W. B. Saunders Company, Philadelphia. 1963.

Langley, Telford and Christensen. Dynamic Anatomy and Physiology. 3d ed. McGraw-Hill Book Company, New York. 1969.

Audiovisuals

UNIT I

The Incredible Voyage. Union Carbide Corporation. (Film.)
Cell Reproduction: Mitosis. McGraw-Hill. (Film.)

UNIT III

Cineradiography of Normal Joint Motion. American Academy of Orthopedic Surgeons. (Film.)
Muscular System. United World Films. (Film.)

UNIT IV

Essentials of the Neurological Examination. Smith Kline & French. (Film.)
The Nose: Structure and Function. Encyclopaedia Britannica Films. (Film.)

UNIT V

The Endocrine Glands: How They Affect You. McGraw-Hill. (Film.)
The Endocrine System. U. S. Armed Forces. (Filmstrip.)

UNIT VI

The Story of Human Reproduction. McGraw-Hill. (Film.)
The Female Reproductive System. U. S. Armed Forces. (Filmstrip.)
Physiology of Normal Menstruation. Schering Film Library. (Film.)
Modern Obstetrics: Normal Delivery. Ortho Pharmaceutical Corp. (Film.)
The Male Reproductive System. U. S. Armed Forces. (Filmstrip.)
Fetal and Neonatal Circulation. Squibb Film Library. (Film.)

UNIT VII

Hemo the Magnificent. Bell Telephone. (Film.)
Functions of the Heart. Smith Kline & French. (Film.)
The Lymphatic System. U. S. Armed Forces. (Filmstrip.)
The Circulatory System. U. S. Armed Forces. (Filmstrip.)

UNIT VIII

The Respiratory System. U. S. Armed Forces. (Filmstrip.)

Audiovisuals (continued)

UNIT IX

The Digestive System. Encyclopaedia Britannica Films. (Film.)

UNIT X

Functional Anatomy of the Human Kidney. Smith Kline & French. (Film.)

A 200 I & II
ANATOMY AND PHYSIOLOGY

Lesson Content

Week One

Unit I -- Introduction, cytology and tissue histology -- Lecture outline

- A. Introduction and cytology
  - 1. Introduction
    - a. terminology
      - (1) anatomy
      - (2) physiology
    - b. organization of the body
      - (1) anatomic directions
      - (2) anatomic planes
      - (3) cavities
      - (4) structural units (cells, tissues, organs, and organ systems)
  - 2. The cell as a functional unit
    - a. cell structure
    - b. organelles and inclusions
      - (1) membrane
      - (2) nucleus

Goals for Students

Unit I -- Introduction, cytology and tissue histology -- Goals

1. Presented with a model the student shall be able to identify major parts in relation to planes of organization, i.e., midline, sagittal and transverse planes.
2. The student must be able to make practical use of general anatomical terms, rather than simply being able to define such terms.
3. An appreciation of the cell tissue → organ → organ system concept shall be gained by the student.
4. The student shall be able to list and describe the function of basic cellular structures.
5. The student is to be able to outline the mitotic process and discuss mitosis as a continuous process and its necessity for the continuation of life, as well as to be able to describe cellular division as controlled by the body in health and disease.

Lesson Content

Goals for Students

Week One (continued)

Unit I(A)(2)(b) (continued)

- (3) cytoplasm
  - (A) endoplasmic reticulum
  - (B) ribosomes
  - (C) mitochondria
  - (D) lysosomes
  - (E) Golgi apparatus
  - (F) granules

3. Nucleus and mitosis
   - a. the nucleus in the resting cell
     - (1) structure and composition
     - (2) normal function
   - b. the nucleus in the dividing cell
     - (1) DNA
     - (2) mitosis

6. The student must be able to diagram and explain, without references, the various mechanisms at work in movement of molecules in and out of cells.

7. Given examples of enzymatic actions, the student shall be able to explain controlled energy processes within the cell.

8. The student shall be able to list from memory the classification of epithelial tissues, as well as being able to discuss the structure in relation to function.

9. The student shall be able to list from memory the classification of connective tissues, as well as being able to discuss the structure in relation to function.

Week Two

B. Tissues

1. Epithelial tissues
   - a. function and classification by shape and arrangement
   - b. membranes and glands

10. The student shall be able to list from memory the classification of connective tissue proper, as well as being able to discuss the structure in relation to function.

11. The concepts of microscopic levels of structure of muscle and nerve tissue shall be gained.

Lesson Content | Goals for Students

Week Two (continued)

Unit I(B) (continued)

2. Connective tissues
    - a. general characteristics
    - b. cells and fibers
    - c. connective tissue proper
        - (1) loose
        - (2) dense
    - d. specialized connective tissues
        - (1) cartilage
        - (2) bone
        - (3) blood and hematopoietic tissue
        - (4) lymphoid tissue
        - (5) reticuloendothelial system
3. Muscle
    - a. skeletal
    - b. cardiac
    - c. smooth
4. Nerve tissue
    - a. nerve tissue proper
    - b. supporting tissue

Week Three

Lesson Content

Unit II -- Integument -- Lecture outline

- A. Skin
  - 1. Layers
    - a. variations in thick and thin skin
    - b. pigmentation
  - 2. Appendages
    - a. glands
      - (1) sebaceous
      - (2) sweat
    - b. hair and nails
- B. Skin transplants
- C. Common lesions of the skin

Unit III -- The musculoskeletal system -- Lecture outline

- A. Skeleton
  - 1. Axial skeleton
    - a. functions and divisions
    - b. the axial skeleton
      - (1) the skull -- cranial and facial bones
      - (2) the hyoid bone
      - (3) vertebrae -- generalized and groups

Goals for Students

Unit II -- Integument -- Goals

1. The student shall be required to learn the multiple functions of the integument and relate such functions to structure.
2. The student shall be able to discuss the indications for skin grafting and list possible sequelae of such.
3. Given a list of lesions of the skin, the student shall be able to define each type of lesion.

Unit III -- The musculoskeletal system -- Goals

1. The student shall be able to discuss the nomenclature and function of bones.
2. The student should be able to list and identify the bones and types of bones composing the axial skeleton.
3. The student should be able to list and identify the bones and types of bones composing the appendicular skeleton.

Lesson Content

Goals for Students

Week Three (continued)

Unit III(A) (continued)

2. Appendicular skeleton
   a. general types of bones composing appendicular skeleton
   b. survey of bones: names and descriptions of major bones and groups of bones

4. The student should be able to relate physical characteristics of individual bones to their functions.

5. The student shall be able to name and describe the three major types of joints.

Week Four

3. Articular system
   a. three major types of joints
      (1) structure and movement
      (2) types of synovial joints and bursae
      (3) comparison of synarthroses and amphiarthroses
   b. names of bones involved with head, hip and knee movement
   c. ligaments and tendons
      (1) location
      (2) function
4. Ossification and bone maintenance
   a. bone formation and growth

6. The student must be able to explain bursae and their involvement in inflammation.

7. The student shall be able to explain the function of ligaments in relation to joint movement.

8. The student shall be able to assimilate information regarding ossification and consequently understand bone growth and remodeling in relation to bone metabolism.

9. The student is expected to be able to describe the microscopic anatomy of the three basic types of muscle tissue and correlate this information with muscle structure and function in the body.

10. The student shall be able to list the major skeletal muscles and describe their action in relation to movement of body parts.

Lesson Content

Unit III(A)(4)(a) (continued)

(1) intramembranous ossification

(2) endochondral ossification

b. bone maintenance

(1) reabsorption and deposition

(2) physiology of calcium in relation to bone

(3) healing of fractures

B. Muscle

1. Microscopic anatomy

a. three types of muscle cells and characteristics

(1) smooth muscle

(A) actions

(B) locations

(2) cardiac muscle

(3) skeletal muscle -- ultrastructure in relation to contraction

Goals for Students

Week Four (continued)

11. The student shall be able to discuss and diagram the molecular level of muscle function.

12. The student shall become familiar with the more common musculoskeletal disorders.

13. The student should gain the ability to relate the pathology of musculoskeletal disorders and normal physiological processes.

Lesson Content Goals for Students

Week Five

Unit III(B) (continued)

2. Major muscle groups
    a. nomenclature, based upon
        (1) location
        (2) attachment
        (3) size
        (4) shape
        (5) function
    b. kinesiology of major muscle groups
3. Muscle physiology
    a. muscle function
    b. contraction
        (1) mechanisms of contraction
        (2) energy sources
        (3) relaxing systems
        (4) oxygen debt
4. Musculoskeletal disorders
    a. disorders of bones
        (1) osteomyelitis
        (2) osteodystrophy
        (3) tumors
        (4) fractures

Lesson Content

Goals for Students

Week Five (continued)

Unit III(B)(4) (continued)

- b. disorders of joints
    - (1) arthritis
    - (2) bursitis
    - (3) rheumatic fever
    - (4) primary fibrositis
    - (5) tenosynovitis
- c. disorders of muscles
    - (1) ischemic necrosis
    - (2) myositis ossificans
    - (3) muscular dystrophies

Week Six

Unit IV -- Nervous system -- Lecture outline

- A. Nerve tissue
    - 1. Characteristics of nerve tissue
    - 2. Types of nerve cells
        - a. neuroglia
        - b. neurons
            - (1) structure
            - (2) classification according to
                - (A) structure
                - (B) function

Unit IV -- Nervous system -- Goals

1. The student shall be able to describe and recognize the microscopic level of structure of the nervous system.
2. The student must be able to diagram and explain function of neurons at the molecular level.
3. The student shall be able to list from memory divisions and subdivisions of the brain and related functions.
4. The student shall be able to describe how the cerebrospinal fluid is produced and circulated.

Lesson Content / Goals for Students

Week Six (continued)

Unit IV(A) (continued)

3. Nerve function
    a. membrane polarity and ionic movement
    b. synapse

B. Central nervous system

1. Brain, including three major divisions
    a. meninges, major fissures, lobes, and the ventricles
    b. areas of specialized function
    c. vascular supply
    d. location of pituitary, thalamus and hypothalamus

5. The student shall be able to list the cranial nerves, their components, and their functions.

6. Given a diagram of a cross section of the spinal cord the student must be able to relate structure and function.

7. The student shall be able to identify the components of a spinal nerve and correlate this with the functional aspects.

8. The student shall be able to describe the functional significance of plexuses.

Week Seven

C. Peripheral nervous system

1. Spinal nerves -- components
2. Plexuses
    a. gray and white matter
    b. major tracts
3. Abnormalities such as hydrocephaly

D. Autonomic nervous system

1. Sympathetic component

9. The student is to be able to describe the regenerative capacity of a peripheral nerve.

10. The student shall be able to trace the action of the autonomic nervous system.

11. The student must be able to explain the principle of homeostasis in terms of integration of sympathetic and parasympathetic innervation by the hypothalamus.

Lesson Content

Goals for Students

Week Seven (continued)

Unit IV(D)(1) (continued)

- a. autonomic sympathetic trunk
- b. Rami communicantes
  - (1) gray nonmyelinated fibers
  - (2) white myelinated fibers
- c. splanchnic nerves
- d. special ganglia
  - (1) cervical sympathetic ganglia
  - (2) thoracic ganglia
  - (3) celiac ganglion
  - (4) superior mesenteric ganglion

12. The student shall be able to diagram, without references, the basic structural features of the eye and list their roles in transmission of a visual image to the visual cortex of the brain.

13. Common disorders of the eye should be familiar to the student.

14. The student shall be able to diagram, without references, structural features of the eye.

15. The student shall understand the conversion of vibrations to nerve impulses perceived as sound, as well as gaining an appreciation for the role of the ear in maintenance of balance for the human body.

Week Eight

2. Parasympathetic component
   - a. autonomic parasympathetic cranial outflow
     - (1) ciliary ganglion
     - (2) sphenopalatine ganglion
     - (3) chorda tympani
     - (4) otic ganglion
     - (5) the vagus

16. Common disorders of the ear should be familiar to the student.

17. The student shall become aware of the importance of normal sensory perception in order to develop empathy with their sensory deprived patients.

18. The student shall be able to discuss the roles of olfactation and gustation in normal sense perception.

Lesson Content	Goals for Students

Week Eight (continued)

Unit IV(D)(2) (continued)

- b. Sacral outflow -- pelvic plexus

E. Special senses

- 1. Vision
  - a. structural components of eye
    - (1) coats
    - (2) muscles
  - b. purposes of structures of eye
    - (1) protection
    - (2) production of visual image
  - c. lacrimal apparatus
  - d. defective vision and methods of correction
  - e. pathological conditions of eye
    - (1) infections
    - (2) causes of blindness
    - (3) drug effects on pupil size
- 2. Hearing
  - a. three major divisions of the ear and their components

Lesson Content

Goals for Students

Week Eight (continued)

Unit IV(D)(2) (continued)

b. pathway of sound and its perception

c. vestibular proprioception

d. pathological conditions of ear

(1) deafness

(2) common infections

Week Nine

3. Olfactation

a. receptor cells

b. physiology of smell

4. Gustation

a. receptor cells

b. physiology of smell

Unit V -- Endocrines -- Lecture Outline

- A. Introduction
  - 1. Terminology
  - 2. General functions
- B. The hypophysis or pituitary
  - 1. Adenohypophysis
    - a. structure and function
    - b. hypothalamic relationship concerning hypothalamic releasing factors

Unit V -- Endocrines -- Goals

1. The student shall be able to explain the concept that biological behavior can be interpreted in terms of both neural and humoral control.
2. The student shall be able to discuss the concept of general endocrine structure and function.
3. The student shall be able to describe the general microscopic structure of the adenohypophysis and relate structure

Lesson Content

Goals for Students

Week Nine (continued)

Unit V(B)(1) (continued)

c. pathology
  (1) hypersecretion
  (2) hyposecretion

2. Pars intermedia and MSH

3. Neurohypophysis
  a. structure
  b. hormones
    (1) oxytocin
    (2) vasopressin

3. (continued)

to function, as well as discussing the significant role it plays in relation to the other endocrine glands of the body.

4. The student shall be able to list the hormones stored in the neurohypophysis and describe their production, storage, release, and actions.

Week Ten

C. Thyroid
  1. Structure
  2. Thyroxin
    a. production
    b. secretion
  3. Calcitonin
    a. production
    b. secretion
  4. Pathology
    a. hypersecretion
    b. hyposecretion

5. The student shall be able to describe the structure and normal function of the thyroid, the parathyroids, the adrenals, and the pancreatic islets and at the same time be able to discuss how hypofunction or hyperfunction of any one gland may affect homeostasis of the body.

6. The function of the pineal as a neuroendocrine gland should be understood by the student, in the light of recent research done regarding this gland.

7. The function of the ovaries, testes and placenta as endocrine glands should be recognized by the student.

Week Ten (continued)

Lesson Content

Unit V (continued)

- D. Parathyroids
  - 1. Structure
  - 2. Secretion
  - 3. Pathology
    - a. hypersecretion
    - b. hyposecretion
- E. Pancreatic islets
  - 1. Structure
  - 2. Secretions
    - a. insulin
    - b. glucagon
  - 3. Pathology
    - a. hypersecretion
    - b. hyposecretion
- F. Adrenals
  - 1. Cortex
    - a. structure
    - b. mineralocorticoids, glucocorticoids, and sex hormones
      - (1) production
      - (2) action

Goals for Students

8. The student shall be able to discuss:
   - a. mechanisms involved in maintaining the internal environment of the body;
   - b. general feedback mechanisms;
   - c. interactions of various organ systems in maintaining a steady state.

Lesson Content Goals for Students

Week Ten (continued)

Unit V(F)(1) (continued)

c. pathology

(1) hypersecretion

(2) hyposecretion

2. Medulla

a. structure

b. catecholamines

(1) production

(2) function

G. Pineal

H. Other organs with endocrine functions

Week Eleven

J. Endocrine function

1. Balance and control

2. Feedback mechanism

a. insulin

b. glucagon

K. Homeostasis

1. Hormone balance

2. Water balance

3. Tempersture regulation

4. Metabolic control

Lesson Content	Goals for Students
Week Eleven (continued)	
Unit VI -- Reproduction -- Lecture outline	Unit VI -- Reproduction -- Goals
A. Female reproductive system 1. Structure and function of a. ovaries b. uterine tubes c. uterus d. vagina e. vulva	1. Given a diagram of the female reproductive system, the student shall be able to label the organs and correlate these organs with their functions.
2. Menstrual cycle	2. The student must be able to outline the menstrual cycle including the hormones involved and their site of production and the changes which occur in the endometrium and breasts.
Week Twelve	
3. Mammary glands a. structure b. cyclic changes c. lactation	3. The student shall be able to describe the structure of mammary glands and discuss their function.
4. Menopause 5. Pregnancy a. implantation b. fetal membranes and placenta c. disorders of pregnancy (1) abortion (2) ectopic pregnancy	4. The student shall be able to discuss: a. normal changes in the female body during pregnancy; b. the relationship of fetal membranes and placenta with fetal development and maintenance; c. causes of disorders in pregnancy; d. the sequence of events leading to labor and the process of labor.

Lesson Content

Goals for Students

Week Twelve (continued)

Unit VI(A)(5) (continued)

- d. labor
- 6. Contraception
- B. Male reproductive system
  - 1. Testes
    - a. structure
    - b. function
      - (1) spermatogenesis
      - (2) spermiogenesis
      - (3) sterility vs. fertility
  - 2. Duct system from seminiferous tubules to prostate

5. Given a diagram of the male reproductive system, the student shall be able to label the organs and correlate these organs with their functions.

6. The student shall be able, without references, to discuss the structure of the penis and relate the mechanism of erection to such architecture.

7. The student shall recognize the importance of gametogenesis as an essential step in genetic continuity.

8. Given an abnormal karyotype, the student shall be able to classify the resulting syndrome.

Week Thirteen

- 3. Seminal vesicles
- 4. Prostate
- 5. Bulbourethral glands
- 6. Penis
  - a. mechanism of erection
  - b. ejaculation
  - c. potency vs. impotency

9. Given a diagram of DNA structure, the student should be able to trace replication of the structure and to diagram its directing role in protein synthesis.

10. The student shall become familiar with common examples of single and multiple allele inheritance in man.

11. The student shall be able to trace the development of the three primary germ layers.

Lesson Content

Goals for Students

Week Thirteen

Unit VI (continued)

C. Gametogenesis

1. Meiosis -- reduction division
    a. normal germ cell division
    b. atypical cell division
2. Gametogenesis
    a. spermatogenesis -- chromosome behavior
    b. oogenesis -- chromosomes and histology

12. The student shall be able to trace the sequential development of organs and organ systems in the embryo.

D. Genetics

1. Genetic information
    a. genes and chromosomes
    d. DNA structure
    c. genetic code
        (1) information storage
        (2) transfer and utilization
2. Mutagenesis

Week Fourteen

3. Practical examples of normal inheritance
    a. blood groups
    b. phenylthiocarbamide
    c. sex determination
    d. tongue rolling

Lesson Content Goals for Students

Week Fourteen (continued)

Unit VI(D) (continued)

4. Chromosomal abnormalities
    - a. nondisjunction
    - b. deletion
    - c. inversion
    - d. duplication
    - e. translocation
5. Inherited diseases
    - a. Down's syndrome
    - b. brachydactyly
    - c. Turner's syndrome
    - d. Klinefelter's syndrome
    - e. congenital abnormalities

E. Female reproductive pathology

1. Menstrual disorders
2. Functional vs. nonfunctional bleeding
3. sterility

Week Fifteen

F. Embryology

1. Fertilization
    - a. normal
    - b. superfetation
    - c. superfecundation
    - d. sex determination

Lesson Content

Goals for Students

Week Fifteen (continued)

Unit VI(F) (continued)

2. Cleavage
    a. blastomere
    b. blastocyst
3. Gastrulation
4. Derivatives of germ layers
5. Period of the embryo
    a. week one
    b. week two
    c. week three
    d. week four
    e. weeks five through eight
6. Period of the fetus
    a. growth
    b. birth

Unit VII -- Cardiovascular system -- Lecture outline

A. Peripheral blood
    1. Plasma
    2. Formed elements
        a. structure
        b. function
    3. Blood grouping
    4. Hemostasis

Unit VII -- Cardiovascular system -- Goals

1. The student shall be able to list and describe the components of plasma and its functions, together with formed elements of blood and their functions.
2. The student shall be able to define hemopoiesis.

Lesson Content

Week Fifteen (continued)

Unit VII (continued)

- B. Hemopoiesis

Week Sixteen

- C. Heart
  - 1. Structure
    - a. layers
    - b. chambers
    - c. valves
  - 2. Physiology
    - a. cardiac cycle
    - b. impulse conducting system
  - 3. Heart sounds
    - a. normal
    - c. abnormal
  - 4. Disorders of the heart
- D. Blood vessels
  - 1. Structure
  - 2. Systemic circulation
    - a. aorta and venae cavae
    - b. carotid artery and jugular vein
    - c. subclavian artery and brachiocephalic vein

Goals for Students

3. Given a diagram of the heart, the student must be able to label all structures and discuss their relationship with normal cardiac function.
4. The origin of heart sounds and their variations as indications of cardiac disease shall become familiar to the student, as well as the nature of the disorders which affect the heart.
5. The student shall be able to name the major blood conducting vessels of the body.
6. The student shall be able to discuss the roles of the pulmonary and hepatic-portal circulatory systems.
7. The student shall be able to delineate the changes in the structure of fetal to adult systemic circulation.
8. Given a specific deviation from the normal range of cardiovascular function, the student must be able to trace the reflex which corrects said deviation.
9. The student shall be able to explain the structure and function of the lymphatic system and understand its relations to immune responses.

Lesson Content	Goals for Students

Week Sixteen (continued)

Unit VII(D)(2) (continued)

- 3. Pulmonary circulation
- 4. Portal circulation
- 5. Fetal circulation

10. The students should gain some basic understanding of immune mechanisms.

Week Seventeen

- E. Vascular physiology
    - 1. Regulation of heart rhythm and contraction
        - a. nervous control
        - b. chemical control
    - 2. Cardiac output
    - 3. Regulation of blood vessels
    - 4. Pressure control
- F. Lymphatic system
    - 1. Components
        - a. lymph
        - b. lymph capillaries
        - c. lymph vessels
        - d. ducts
        - e. nodes
    - 2. Functions of lymphatic system

Lesson Content

Goals for Students

Week Seventeen (continued)

Unit VII(F) (continued)

1. Components
    - a. lymph
    - b. lymph capillaries
    - c. lymph vessels
    - d. ducts
    - e. nodes
2. Functions of lymphatic system

G. Lymphoid organs and tissues

1. Organs
    - a. spleen
    - b. tonsils
    - c. thymus
2. Immune mechanisms
    - a. antigen-antibody response
    - b. autoimmunity

Unit VIII -- Respiratory system -- Lecture outline

A. Upper respiratory passages

1. Anatomy of upper respiratory structures
    - a. nose
    - b. sinuses
    - c. pharynx
    - d. larynx

Unit VIII -- Respiratory system -- Goals

1. Given a diagram of the respiratory tract, the student shall be able to label all structures and correlate them with their normal functions.
2. The student shall be able to correlate respiratory physiology with circulatory mechanisms in the respiratory tract.

Lesson Content

Goals for Students

Week Seventeen (continued)

Unit VIII(A) (continued)

  2. Function of upper respiratory structures

3. The student shall be able to discuss the integration of voluntary, chemical, and physical control of respiration.

Week Eighteen

B. Lower respiratory passages

  1. Anatomy
    - a. trachea
    - b. bronchi
    - c. bronchioles
    - d. alveoli
  2. Pulmonary segments
  3. Blood supply of lungs

C. Respiratory physiology

  1. Mechanics of breathing
    - a. air pressure and flow
    - b. inspiration of air
    - c. expiration of air
    - d. modified breathing
    - e. artificial respiration
  2. Changes in pulmonary volume
    - a. pulmonary function tests
    - b. bronchiospirometry
    - c. pulmonary volumes

Lesson Content

Goals for Students

Week Eighteen (continued)

Unit VIII(C) (continued)

3. Respiratory gases
    - a. composition
    - b. diffusion and exchange
    - c. transport
4. Control of breathing
    - a. respiratory center
    - b. voluntary control
    - c. chemical control
    - d. physical control

Week Nineteen

Unit IX -- Digestive system -- Lecture outline

A. Alimentary canal
  1. Oral cavity
      - a. structure
      - b. function
  2. Pharynx
  3. General architectural plan of alimentary canal
      - a. esophagus
      - b. stomach
      - c. small intestine

Unit IX -- Digestive system -- Goals

1. The student should be able to diagram the various segments of the digestive system as well as structural modifications of each segment.
2. The student shall learn the digestive processes associated with the various digestive organs, including the accessory organs of digestion.
3. The student must be able to explain degradative and synthetic metabolic processes and their relationship to energy production and formation of structural entities.

Lesson Content	Goals for Students

Week Nineteen (continued)

Unit IX(A)(3) (continued)

- d. large intestine
- e. rectum

B. Accessory organs of digestion: their structure and function

1. Liver
2. Gallbladder
3. Pancreas

Week Twenty

C. Digestive physiology

1. Functions of the mouth
2. Functions of the stomach
    - a. secretion
    - b. regulation of gastric secretion
    - c. inhibition of gastric secretion
    - d. digestion
    - e. motility
3. Functions of the small intestine
    - a. secretion
    - b. motility
    - c. digestion
4. Functions of the large intestine

Lesson Content

Goals for Students

Week Twenty (continued)

Unit IX(C) (continued)

5. Absorption
    a. stomach
    b. small intestine
    c. large intestine
6. Nutrition and metabolism
    a. kinds of foodstuffs
        (1) carbohydrates
        (2) proteins
        (3) fats
        (4) vitamins
    b. metabolism of foodstuffs
    c. energy metabolism

Unit X -- Urinary system -- Lecture outline

A. Kidneys
    1. Structure
        a. gross
        b. microscopic
    2. Vascular supply
    3. Congenital malformations and diseases
B. Ureters
    1. Structure
    2. Function

Unit X -- Urinary system -- Goals

1. The student shall be able to diagram the urinary system relating structure to function and to explain water and ionic balance.
2. With the aid of diagrams, the student shall be able to explain the role of the kidney in filtration, reabsorption, secretion, and excretion.

Lesson Content

Goals for Students

Week Twenty (continued)

Unit X (continued)

- C. Urinary bladder
  - 1. Structure
  - 2. Function
- D. Urethra
  - 1. Structure
  - 2. Function

Week Twenty-one

- E. Renal physiology
  - 1. Filtration
  - 2. Selective reabsorption
  - 3. Secretion
- F. Urinary tract diseases and disorders
  - 1. hypertension
  - 2. glomerulonephritis
  - 3. pyelonephritis

Unit XI -- Fluid and electrolyte balance -- Lecture outline

- A. Composition of body fluids
- B. Regulation of electrolyte balance
  - 1. Osmotic pressure
  - 2. Sodium balance
  - 3. Potassium balance
  - 4. Edema

Unit XI -- Fluid and electrolyte balance -- Goals

1. The student is to understand buffer systems through the use of existing physiological buffer systems as examples.
2. The student is also to gain insight as to how acid-base balance is maintained through respiratory and urinary mechanisms.

Lesson Content	Goals for Students

Week Twenty-two

Unit XI (continued)

C. General principles of fluid therapy

D. Acid-base regulation

E. Review of buffer activity

  1. Bicarbonate-carbonic acid system

  2. Phosphate buffer system

  3. Hemoglobin-oxyhemoglobin system

  4. Protein buffer system

F. Regulation of acid-base equilibrium by ion exchange

  1. Respiratory regulation of acid-base balance

  2. Urinary regulation of acid-base balance

G. Clinical considerations in acid-base balance

A 201 I & II
ANATOMY AND PHYSIOLOGY LABORATORY
(DIVISION FOR PHYSICIAN'S ASSISTANTS)

Laboratory Content	Goals for Students
Week One	
Unit I -- Introduction and histology -- Laboratory outline	Unit I -- Introduction and histology -- Goals
A. Introductory lab 1. Planes of organization of the body 2. Cavities and organs of the body 3. Dissection of laboratory animal	1. Given an anesthetised, vivisected animal, the student must be able to identify cavities and organs of the body. He must be able to handle a laboratory animal without injury or undue distress to himself or the animal. He must be able to weigh animals and calculate and administer the proper dosage of anesthetic. He must successfully perform basic surgical techniques on the anesthetised animal.
Week Two	
B. Use of microscope and histology of tissues and skin 1. Mechanics of microscopy 2. Examination of buccal scraping 3. Microscopy of four primary tissue types 4. Histology of skin (Unit II)	2. Given a compound microscope, the student must be able to name its parts and demonstrate its proper use. He must be able to use the microscope to identify primary tissue types. He must be able to prepare and stain a slide with cheek epithelial cells for microscopic examination.

Laboratory Content	Goals for Students
Week Three	
Unit III -- Musculoskeletal system -- Laboratory outline	Unit III -- Musculoskeletal system -- Goals
A. Animal surgery 1. Cannulation of lab animal's a. trachea b. femoral vein 2. Suturing of lab animal	1. The student must successfully determine and administer the proper dose to anesthetise a laboratory animal for surgery. He shall then successfully insert a tracheal and femoral cannula.
Week Four	
B. Human skeleton 1. Examination of human skeleton 2. Labeling of diagrammatic drawings 3. Examination of animal joint 4. X-rav correlation of boney structures	2. Given a disarticulated skeleton, with an articulated skeleton for reference, together with anatomical texts, the student should be able to identify individual bones of the skeleton and their articulations. 3. The student shall be able to conduct a basic physical examination and to demonstrate on request
Week Five	
C. Human muscular system 1. Topographical anatomy 2. Basics of physical examination	a. points of reference for organs; b. pressure points; c. sites for injection; d. sites for marrow aspiration.

Laboratory Content	Goals for Students
Week Six	
Unit III (continued)	
D. Muscle physiology 1. Contraction of skeletal muscle 2. Nerve-muscle physiology	4. Given a glycerated muscle preparation and solutions of ATP only, and of ATP and appropriate ions, the student should be able to demonstrate the effects of these agents on the contraction of the muscle fibers.
Week Seven	
E. Gross anatomic correlation -- demonstrations utilizing cadavers relate the true structure of organs and areas studied in topographical anatomy	5. Using live frog nerve-muscle preparations the student should be able to demonstrate the effect of neuropharmacologic agents on this preparation. 6. After observing a gross anatomical dissection of a cadaver, the student shall be able to point out the components of the major organ systems of the human body. Through observing several dissected cadavers he is to gain an appreciation for individual variations.
Week Eight	
Unit IV -- Nervous system -- Laboratory outline	Unit IV -- Nervous system -- Goals
A. Gross anatomy 1. Brain 2. Spinal cord B. Diagrammatic representation of cranial nerves	1. Given a model of the brain and part of the spinal cord, the student shall be able to distinguish major structural and functional regions. He must be able to list the cranial nerves and their functions.

Laboratory Content	Goals for Students
Week Eight (continued)	
Unit IV (continued)	
C. Neurological examination 1. Demonstration 2. Practice	2. After observing a neurological examination (with explanation) and practicing such examination on his colleagues, the student must be able to conduct the rudiments of the neurological examination on a "patient".
Week Nine	
D. Reflex arcs 1. Frog 2. Human E. Activities of normal, spinal and decerebrate frog	3. Using a live prepared frog, the student must be able to demonstrate the elementary reflex arc. He should also be able to demonstrate gross functional areas of the central nervous system by selectively traumatizing frogs and showing selective loss of function.
Week Ten	
Unit V -- Endocrines -- Laboratory outline	Unit V -- Endocrines -- Goals
A. Adrenal gland 1. Effects of adrenalectomy 2. Action of cortin	1. The student shall gain skill in surgical technique, suturing and aseptic procedure through performing of an adrenalectomy on rats. He must be able to explain the effects observed with the administration and deprivation of adrenal hormones of adrenalectomized rats.

Laboratory Content | Goals for Students

Week Eleven

Unit V (continued)

B. Testis

1. Effects of castration on rat
2. Effects of testosterone on rat

C. Aschheim-Zondek pregnancy test

D. Insulin shock in goldfish

2. The student must be able to use the Aschheim-Zondek pregnancy test to determine the state of pregnancy of women whose urine samples will be provided.

Week Twelve

Unit VI -- Reproduction -- Laboratory outline

A. Female reproductive system

1. Anatomy
2. Estrus cycle
3. Fertilization
4. Physiology of normal menstruation

Unit VI -- Reproduction -- Goals

1. The student must be able to outline the events of the human menstrual cycle after discussion accompanying films and filmstrips concerned with this subject.

Week Thirteen

B. Male reproductive system -- gross anatomy demonstrations

2. After observing a dissection of the male reproductive system, the student must be able to identify the structures involved in this system.

Week Fourteen

C. Genetics -- guest lecturer for genetic counseling

3. The student shall familiarize himself with the probabilities of transmittance of inheritable diseases and disorders from parents to offspring.

Laboratory Content	Goals for Students
Week Fifteen	
Unit VI (continued) D. Embryology 1. Circulation a. fetal b. neonatal 2. Embryology of the frog a. fertilization b. cleavage 3. Human fetal development	
Week Sixteen	
Unit VII -- Cardiovascular system -- Laboratory outline	Unit VII -- Cardiovascular system -- Goals
A. Measurement of blood pressure B. Electrocardiogram 1. Recording 2. Interpretation	1. The student must be able to use the sphygmomanometer to measure blood pressure accurately, and must be able to describe the ways in which exercise and posture affect blood pressure.
Week Seventeen	
C. Control of blood pressure D. Capillary beds E. Rate of blood flow F. Anatomy of the lymphatic system	2. After studying slides of capillary structures, and viewing the flow of blood through these structures in live animals, the student must be able to outline the function and regulation of this aspect of the circulatory system.

Laboratory Content	Goals for Students

Week Eighteen

Laboratory Content	Goals for Students
Unit VIII -- Respiratory system -- Laboratory outline	Unit VIII -- Respiratory system -- Goals
A. Anatomy of respiratory system B. Physiology of respiratory system	1. Using models of lungs and associated structures the student must be able to identify components of the respiratory system. He should be able to calculate tidal and residual volumes from information obtained by use of a spirometer.

Week Nineteen

Laboratory Content	Goals for Students
Unit IX -- Digestive system -- Laboratory outline	Unit IX -- Digestive system -- Goals
A. Gross anatomy demonstration of digestive system of cadavers	1. After observing a gross anatomy demonstration of the digestive system of a cadaver, the student must be able to identify the structures and organs comprising this system.

Week Twenty

Laboratory Content	Goals for Students
B. Digestive physiology 1. Digestive enzymes 2. Chemical changes during enzymatic activity in a. carbohydrates b. proteins c. lipids	2. After utilizing *in vitro* some of the digestive enzymes associated with each of the major food groups, the student must be able to relate the effect of temperature and pH on the action of these enzymes, and be able to list the products to be expected from said digestion.

Laboratory Content	Goals for Students
Week Twenty-one	
Unit X -- Urinary system -- Laboratory outline	Unit X -- Urinary system -- Goals
A. Dissection of kidney B. Morphology of 1. Kidney 2. Ureter 3. Urinary bladder	1. The student must be able to identify macroscopic and microscopic structures associated with kidney function, utilizing appropriately dissected kidneys.

A 201 I & II
PATHOLOGY

Course Description

Course content:	The student is introduced to the major processes involved in producing pathological entities and disorders in man and how such states interfere with normal physiology. After this knowledge of diseases and abnormal states is acquired, it is correlated with the more commonly seen pathology in clinical practices.
Credits:	Two quarter credits for each of two quarters.
Instructor:	Glenn R. Clark, Jr., M.D.
Class period:	Two 50-minute lecture periods per week for two quarters.
Methods of presentation:	Lectures, films, slides, and student reports.
Evaluation:	Unannounced quizzes, unit quizzes, and a final examination each quarter.

Objectives

The student shall:

1. be able to discuss the etiology of the most commonly seen diseases and disorders when given a list of such;
2. be able to relate verbally or in writing how abnormal states of the body develop and how these states affect cells, tissues, organs, and organ systems;
3. be able to write or discuss with accuracy the pathological processes which most often affect tissues, organs, and organ systems.

Textbook

Smith. Microbiology and Pathology. 9th ed. The C. V. Mosby Company, St. Louis. 1969. (Required text.)

References

Anderson and Scotti. Synopsis of Pathology. 7th ed. The C. V. Mosby Company, St. Louis. 1968.

Boyd. Introduction to the Study of Disease. 6th ed. Lea and Febiger, Philadelphia. 1971.

Fallis. Textbook of Pathology. McGraw-Hill Book Company, New York. 1964.

Morehead. Human Pathology. McGraw-Hill Book Company, New York. 1965.

Robbins. Pathology. 3rd ed. W. B. Saunders Company, Philadelphia. 1967.

Audiovisuals

Transparencies prepared by Department of Pathology, The Bowman Gray School of Medicine, throughout course.

UNIT II

From Head to Toe. Abbott Laboratories. (Film.)

Vitamins and Some Deficiency Diseases. American Cyanamid Company. (Film.)

A 201 I & II
PATHOLOGY

Lesson Content | **Goals for Students**

Week One

Unit I -- Introduction to pathology -- Lecture outline

- A. Concepts of health
- B. Concepts of disease
- C. Concepts of etiology
- D. Concepts of pathogenesis

Unit I -- Introduction to pathology -- Goals

1. The student should have an overview of health and disease along with causative and influencing factors in disease processes.
2. The student must be able to differentiate in writing the concept of organic

Week Two

Unit II -- The processes of disease -- Lecture outline

- A. Definition of retrogressive processes
  - 1. Degeneration
    - a. cloudy swelling
    - b. hydropic degeneration
    - c. metamorphosis
  - 2. Atrophy and its causes
  - 3. Infiltrates and deposits
    - a. hyaline
    - b. amyloid
    - c. glycogen
    - d. urate
    - e. lipidoses
    - f. calcium

Unit II -- The processes of disease -- Goals

1. The student is to establish that most retrogressive processes are reversible and to be able to approximate the degree of cellular damage when given a list of such processes.
2. The ability of the student to associate retrogressive processes with common disease entities is anticipated.
3. The student shall be able to list from memory the general causes of necrosis after acquiring a knowledge of the process.
4. The student shall have gained the knowledge to establish relationships of reversible processes to cell recovery or the possibility of their progression into non-reversible states.
5. After having committed to memory the phases of somatic death, the student shall be able to give an intelligent discussion relating these phases to forensic medicine.

Lesson Content / **Goals for Students**

Week Three

Unit II(A)(3) (continued)

- g. pathologic pigmentation
- 4. Necrosis
  - a. causes
  - b. microscopic changes
  - c. forms of necrosis
    - (1) coagulation
    - (2) caseous
    - (3) liquefaction
    - (4) gangrene
      - (A) "dry"
      - (B) "wet"
      - (C) gas
- 5. Somatic death
  - a. algor mortis
  - b. rigor mortis
  - c. livor mortis
  - d. autolysis
  - e. putrefaction

6. The student must realize that inflammation is not always a result of infection.

7. The student shall be able to list from memory the mechanisms at work within the body in establishing the inflammatory process.

8. Given a list of the most common types of inflammation, the student shall be able to define each type and relate what agents will produce each type.

9. The purpose of inflammation limiting the extent and severity of insult to the host is a fact that must be appreciated by the student.

10. Without aid of a textbook or notes, the student must be able to explain healing of a surgical wound and the factors that might delay or prevent such wound healing.

11. Given a list of abnormal growth processes, pure and composite, the stude shall be able to define each and give at least one example of each. At the same time if the student is presented with a list of specific entities resulting from abnormal growth processes, he is expected to be able to place the entity within its correct classification niche.

Week Four

- B. Inflammation
  - 1. Mechanism of inflammation
    - a. systemic reactions
    - b. local reactions

12. When given a list of specific entitie resulting from abnormal growth processes, the student must be able to differentiate normal physiological processes from pathological ones.

Lesson Content

Goals for Students

Week Four (continued)

Unit II(B) (continued)

2. Acute inflammation
    - a. pathogenesis
    - b. microscopic appearance
    - c. gross characteristics
    - d. types
        - (1) catarrhal
        - (2) serous
        - (3) fibrinous
        - (4) hemorrhagic
        - (5) purulent
    - e. results
        - (1) resolution
        - (2) organization
    - f. use of adrenal steroids

13. From memory, the student shall be able to list the stimuli evoking some abnormal growth processes and explain the reversibility if such stimuli are removed.

14. Overlapping in the areas of some abnormal growth processes must be recognized in order to avoid confusion on the part of the student.

15. Given the most correct name of a neoplasm, the student should be able to define the tissue involved and the characteristics of the lesion.

16. The student must be able to list from memory characteristics of benign and malignant neoplasms and the methods of spread for malignant tumors.

17. Most important is the ability of the student to acquire a factually based understanding of how neoplastic masses and their metastases can affect the human organism.

Week Five

3. Repair following resolution
4. Chronic inflammation including granulomatous inflammation
    - a. causes
    - b. microscopic appearance
    - c. gross characteristics

18. The student must acquire a basic knowledge of fluid and electrolyte balance and be able to apply this knowledge to imbalances involving each or a combination of the two in diagnosis and in restoring homeostatis if given values obtained from laboratory data.

Lesson Content

Goals for Students

Week Five (continued)

Unit II(B) (continued)

5. Healing of a surgical incision
    a. fibrinous union
    b. granulation tissue union
    c. fibrous tissue union
    d. epidermal healing
6. Failure of healing: its causes
7. Regeneration of tissues

19. The student shall be able to write from memory a brief summary of the mechanisms involved in clotting.

20. The student shall be able to explain without aid the most common causes of decrease in blood supply or the loss of blood supply.

21. The student shall be able to list the sequelae resulting from disturbances in blood flow.

22. The student is required to familiarize himself with the more common vitamin deficiencies and the body physiology disturbed by such deficiencies.

Week Six

C. Abnormal growth processes
    1. Pure processes
        a. hypoplasia
        b. hyperplasia: physiologic and pathologic
            (1) reparative
            (2) diffuse
            (3) focal tumerous
        c. hypertrophy
            (1) cellular (pure hypertrophy)
            (2) hyperplasia
            (3) a combination of pure hypertrophy and hyperplasia

Lesson Content | Goals for Students

Week Six (continued)

Unit II(C)(1) (continued)

- d. metaplasia
  - (1) epithelial tissue
  - (2) connective tissue
- e. neoplasia (covered later)

2. Composite processes
   - a. dysplasia
   - b. heteroplasia
   - c. tumor formation
     - (1) benign
     - (2) malignant
     - (3) intermediate
   - d. cyst formation
     - (1) congenital
     - (2) acquired
     - (3) neoplastic

Week Seven

   - e. dysontogenesis
     - (1) monsters
     - (2) localised anomalies (agenesis, aplasia, congenital hypoplasia, developmental arrests, hamartoma, and abnormal enlargement)

Lesson Content	Goals for Students

Week Seven (continued)

Unit II(C) (continued)

3. Reinforcement of the pure abnormal growth process of neoplasia
   - a. characteristics
   - b. causes
     - (1) physical
     - (2) chemical
     - (3) biological
     - (4) influencing factors
       - (A) heredity
       - (B) embryonic differentiation
   - c. pathogenesis
     - (1) stimulation
     - (2) change in cellular metabolism
     - (3) autonomous growth
   - d. behavioral and structural characteristics in
     - (1) benign neoplasia
     - (2) malignant neoplasia (methods of metastasis)
     - (3) intermediate neoplasia
   - e. classification and nomenclature of neoplasms according to
     - (1) structure
     - (2) origin

Lesson Content | Goals for Students

Week Eight

Unit II (continued)

D. Miscellaneous disease processes and states

1. Disturbances in body fluids (follows discussion of water and electrolyte balance with buffer systems, respiratory and renal controls)

   a. acidosis and alkalosis (metabolic and respiratory)

   b. dehydration

   c. edema

   d. shock

   e. burns

Week Nine

2. Disturbances of blood flow

   a. hemorrhage

      (1) causes

      (2) prevention

   b. thrombosis

   c. embolism

      (1) origin

      (2) effects

   d. ischemia

      (1) causes

      (2) effects

Lesson Content

Goals for Students

Week Nine (continued)

Unit II(D) (continued)

3. Vitamin deficiencies
   a. primary and secondary deficiencies
   b. vitamin A deficiency -- keratomalacia
   c. vitamin B complex deficiency
      (1) beriberi
      (2) pellagra
      (3) pernicious anemia
   d. vitamin C deficiency -- scurvy
   e. vitamin D deficiency -- rickets
   f. vitamin K deficiency -- bleeding

Week Ten

Unit III -- Diseases produced by biologic agents -- Lecture outline

A. Bacterial diseases; e.g., pneumonia
B. Viral diseases; e.g., rubella
C. Spirochetal diseases; e.g., syphilis
D. Rickettsial diseases; e.g., Rocky Mountain spotted fever
E. Fungal diseases; e.g., histoplasmosis
F. Animal parasitic diseases; e.g., amebiasis

Unit III -- Diseases produced by biologic agents -- Goals

1. The student shall be able to list from memory some of the more common agents of infective diseases.
2. The student must be able to relate, without aid of textbook or notes, infectious processes produced by biologic agents and associate the types of agents with routes of infection, spread, pathogenesis, prognosis, and general types of treatment.
3. The student should have some concep of how general groups of biological agents modify the normal physiologi processes of the human organism.

Lesson Content / **Goals for Students**

Week Eleven

Unit IV -- Diseases produced by physical and chemical agents -- Lecture outline

A. Physical agents
   1. Trauma (mechanical injury) including head injuries
   2. Thermal injuries
   3. Injury caused by ionizing radiation

B. Chemical agents
   1. Metallic poisons
   2. Nonmetallic inorganic poisons
   3. Alcohol
   4. Asphyxiants
   5. Corrosives
   6. Halogens
   7. Pesticides
   8. Therapeutic drugs
   9. Animal poisons
   10. Plant poisons
   11. Chemical warfare agents

Unit IV -- Diseases produced by physical and chemical agents -- Goals

1. Given a list of various types of traumatic injuries, the student shall be able to write a brief description of the possible pathology which would ensue in affected tissues and/or organs.
2. The student shall become more aware of existing environmental hazards and how such hazards may produce pathological changes in man.

Week Twelve

Unit V -- Diseases and disorders of the endocrine glands -- Lecture outline

A. Thyroid
   1. Goiters
   2. Hyper- and hypothyroidism
   3. Neoplasms

Unit V -- Diseases and disorders of the endocrine glands -- Goals

1. Without any aids, the student shall be able to discuss in writing how hypo- or hypersecretion of any endocrine organ can affect homeostasis of the human organism.

Lesson Content

Goals for Students

Week Twelve (continued)

Unit V (continued)

- B. Pancreatic islets -- diabetes mellitus
- C. Adrenals
  - 1. Hyper- and hyposecretion
  - 2. Neoplasms
- D. Parathyroids -- hyper- and hypoparathyroidism
- E. Hypophysis
  - 1. Dysfunctions
  - 2. Neoplasms

2. The student shall first memorize the most common types of neoplasms of the various endocrine glands and then be able to write a brief description as to how the neoplasm may influence homeostasis.

Week Thirteen

Unit VI -- Diseases and disorders of the female reproductive system -- Lecture outline

- A. Menstrual disorders
- B. Tumors
  - 1. Ovarian
  - 2. Uterine
  - 3. Breast
- C. Endometriosis
- D. Endometrial hyperplasia
- E. Ectopic pregnancy

Unit VI -- Diseases and disorders of the female reproductive system -- Goals

1. Common terms, such as menorrhagia, relating to menstrual disorders are to be memorized by the student.
2. Given a description of changes in the breast and uterus, the student shall be able to recognize those which may indicate some underlying pathology.
3. The student shall be able to write brief discussions, without referenc or notes, explaining how inflammatory processes affect the female reproductive system.
4. The student shall be able to list the most common neoplasms of the female reproductive system and the breast including symptoms of each.

Lesson Content | **Goals for Students**

Week Fourteen

Lesson Content

Unit VII -- Diseases and disorders of the male reproductive system -- Lecture outline

- A. Developmental defects of the male reproductive system
- B. Testis and epididymis
  - 1. Infectious diseases
  - 2. Neoplasms
- C. Prostate
  - 1. Hyperplasia
  - 2. Carcinoma

Goals for Students

Unit VII -- Diseases and disorders of the male reproductive system -- Goals

1. The student, when given a list of the common developmental defects of the male reproductive system, should be able to define each.
2. The student shall be able to discuss verbally the more frequently seen infectious processes and related sequelae.
3. Symptoms and complications of neoplasms of the testes and carcinoma of the prostate shall be identified by the student.

Week Fifteen

Lesson Content

Unit VIII -- Diseases and disorders of the nervous system -- Lecture content

- A. Developmental defects
- B. Cerebral palsy
- C. Cerebrovascular accidents
  - 1. Hemorrhage
  - 2. Thrombosis
  - 3. Embolism
- D. Neoplasms of the central and peripheral nervous systems
- E. Central nervous system infections
- F. Degenerative diseases of the central nervous system

Goals for Students

Unit VIII -- Diseases and disorders of the nervous system -- Goals

1. The student should be familiar with commonly occurring developmental defects of the central nervous system.
2. After understanding the pathology of cerebrovascular accidents, information regarding precipitating factors and sequelae of such shall be assimilated by the student so that he will be able to list them in writing.
3. Given a list of infectious and degenerative processes affecting the nervous system, the student should be able to define the etiology and the portion of the central nervous system involved and how functions are impaired.
4. The student must understand why central nervous system tumors arise from glial cells and be able to identify symptoms produced by such tumors.

Lesson Content	Goals for Students
Week Sixteen	
Unit IX -- Heredity in disease -- Lecture outline	Unit IX -- Heredity in disease -- Goals
A. Medical genetics 1. Chromosomes a. sex chromosomes b. chromosomal abnormalities 2. Genes and mutation	1. The genetic mechanisms at work in transmitting hereditary diseases should be familiar to the student.
B. Patterns of inheritance	
Unit X -- Immunity and hypersensitivity -- Lecture outline	Unit X -- Immunity and hypersensitivity -- Goals
A. Types of immunity B. Types of hypersensitivity C. Auto-immune diseases	1. The student is expected to understand the mechanisms at work in the development of immunity and hypersensitivity. Then the student should be able to apply his knowledg to host responses regarding various reactions and disease processes.
Week Seventeen	
Unit XI -- Diseases and disorders of the bone marrow and lymph nodes -- Lecture outline	Unit XI -- Diseases and disorders of the bone marrow and lymph nodes -- Goals
A. Blood groups -- incompatabilities	1. The student shall gain an insight into the types of incompatabilities existing in ABO groups and those capable of being produced by transfusions and during pregnancy.
B. Anemias 1. Iron deficiency 2. Pernicious 3. Hemolytic 4. Aplastic 5. Pancytopenic	2. Given a list of factors responsible for producing anemias along with a list of types of anemias, the student shall be able to match the factors with the type of anemia produced by said factors.

Lesson Content

Goals for Students

Week Seventeen (continued)

Unit XI (continued)

- C. Bleeding disorders
  - 1. Purpura
  - 2. Hemophilia
- D. Leukemia
  - 1. Myelogenous
  - 2. Lymphatic
- E. Diseases of the lymph nodes
  - 1. Lymphosarcoma
  - 2. Hodgkin's disease
  - 3. Malignant lymphoma

3. The student shall be called upon to list the mechanisms involved in clotting as presented in clinical laboratory procedures. He then must be able to associate various bleeding disorders with the relevant stage in clotting.

4. The student shall be able to list basic characteristics of leukemias and malignancies of the lymphoid tissue.

Week Eighteen

Unit XII -- Diseases and disorders of the cardiovascular system -- Lecture outline

- A. Heart
  - 1. Congenital disorders
  - 2. Rheumatic heart disease
  - 3. Bacterial endocarditis
  - 4. Valvular disease
  - 5. Coronary artery disease
- B. Vessels
  - 1. Arteries
    - a. arteriosclerosis
    - b. hypertension
    - c. arteritis
    - d. aneurysms

Unit XII -- Diseases and disorders of the cardiovascular system -- Goals

1. The student is to acquire a knowledge of how infectious and inflammatory processes affect the heart and how their sequelae may damage the heart and lead to complications throughout the body.

2. The student shall be able to list the most common types of congenital heart disease and differentiate the same congenital diseases.

3. Causes of myocardial infarction and its complications should become common knowledge for the student.

4. The student shall be able to list and discuss without the aid of references the diseases and disorders of the vessels and the possible influences of such on the circulatory system and normal body function.

Lesson Content

Goals for Students

Week Eighteen (continued)

Unit XII(B) (continued)

2. Veins

a. phlebitis and thrombophlebitis

b. varicosities

c. hemorrhoids

Week Nineteen

Unit XIII -- Diseases and disorders of the respiratory tract -- Lecture outline

- A. Neoplasms
  - 1. Pharynx
  - 2. Larynx
  - 3. Lung
- B. Infectious processes of the lungs
  - 1. Bacterial pneumonias
  - 2. Viral pneumonias
  - 3. Tuberculosis
- C. Bronchitis
- D. Asthma
- E. Bronchiectasis
- F. Emphysema
- G. Atelectasis

Unit XIII -- Diseases and disorders of the respiratory tract -- Goals

1. The most commonly seen types of neoplasms of the respiratory system shall be listed and defined by the student.

2. Without references, the student shall be able to list the more common living agents which can infect the lungs and how they produce disease.

3. The student shall be able to discuss the pathogenesis of diseases and disorders, other than infections, of the lungs and bronchial tree.

Week Twenty

Lesson Content

Unit XIV -- Diseases and disorders of the digestive system -- Lecture outline

A. Alimentary tract

1. Congenital defects
2. Neoplasms
   - a. esophageal
   - b. gastric
   - c. colonic
3. Peptic ulcer
4. Inflammatory processes
   - a. gastritis
   - b. enteritis
   - c. appendicitis
   - d. colitis
   - e. peritonitis
5. Intestinal obstruction
6. Miscellaneous states such as volvulus

Goals for Students

Unit XIV -- Diseases and disorders of the digestive system -- Goals

1. The student must appreciate the reasons for the early diagnosis of congenital defects of the alimentary tract.
2. The student shall be able to write a discussion about the pathogenesis and complicating factors of peptic ulcer.
3. Effects of inflammatory processes involving the alimentary canal on general body physiology shall be learned by the student.
4. The student shall be able to list and define the various types of intestinal obstruction without references and then discuss how the fluid compartments, electrolytes and metabolism in the body are altered.
5. The student shall be able to list, define and discuss the pathological mechanisms involved in such liver disorders as cirrhoses, hepatitis, and neoplasis while not neglecting significant disorders of the gall bladder and pancreas.

Week Twenty-one

B. Liver

1. Cirrhoses
2. Hepatitis
3. Neoplasms

Lesson Content

Goals for Students

Week Twenty-one (continued)

Unit XIV (continued)

C. Gallbladder
    1. Cholelithiasis
    2. Cholecystitis

D. Pancreas
    1. Pancreatitis
    2. Neoplasms
    3. Cystic fibrosis

Week Twenty-two

Unit XV -- Diseases and disorders of the urinary system -- Lecture outline

A. Kidney
    1. Glomerulonephritis
    2. Nephrosis
    3. Pyelonephritis
    4. Neoplasms
    5. Calculi

B. Miscellaneous states
    1. Obstruction
    2. Cystitis
    3. Urethritis

Unit XV -- Diseases and disorders of the urinary system -- Goals

1. After acquiring a basic knowledge of diseases and disorders of the urinary tract, the student shall be able to discuss not only the lesions of such diseases and disorders but how renal physiology is affected as well.

2. The student shall be able to list the most frequently encountered neoplasms of the urinary system and briefly describe in general each neoplasm.

A 203 I & II
MEDICAL TERMINOLOGY

Course Description

Course content:	The student is introduced to terms related to all areas of medical science, hospital service and paramedical specialties.
Credits:	One quarter credit for each of two quarters.
Instructor:	Mrs. Barbara Volk, RRL.
Class periods:	One 50-minute lecture period each week.
Methods of presentation:	Lectures, terminology workbook, reading reports and case studies.
Evaluation:	Weekly quizzes, homework assignments, and a final examination each quarter.

Objectives:

The student shall:

1. be able to read and listen to medical reports, conversations, etc., with comprehension;
2. be able to spell medical words correctly;
3. be able to pronounce medical words correctly;
4. be able to interpret unfamiliar vocabulary with some degree of accuracy;
5. be able to use medical reference books;
6. be able to think medically -- to detect misusage of medical vocabulary.

Textbook

Dellinger. A Manual of Medical Terminology. E. V. Dellinger Publishers, Columbia, South Carolina. 1968. (Required text.)

Dorland's Illustrated Medical Dictionary. 24th ed. W. B. Saunders Company, Philadelphia. 1968. (Required text.)

Audiovisuals

None.

A 203 I & II
MEDICAL TERMINOLOGY

Lesson Content	Goals for Students
Unit I -- Introduction to medical terminology -- Lecture outline	Unit I -- Introduction to medical terminology -- Goals
A. Course description 1. Course content 2. Credits 3. Enrollment 4. Instructor 5. Class periods 6. Methods of presentation 7. Evaluation methods B. Objectives for course C. Statement of purpose D. Textbooks	1. The student should obtain an overview of the course. 2. The student should be familiar with the administrative details of the course. 3. The student should be familiar with the overall course objectives.
Unit II -- Prefixes and suffixes -- Lecture outline	Unit II -- Prefixes and suffixes -- Goals
A. Prefixes denoting 1. Location, direction and tendency 2. Negation 3. Number 4. Color 5. Position 6. Miscellaneous prefixes	1. The student shall be able to explain the basic concepts concerned with the formation of medical terms.

Lesson Content	Goals for Students
Week One (continued)	
Unit II (continued)	
B. Suffixes	
1. Diagnostic suffixes	
2. Symptomatic suffixes	
3. Operative suffixes	
Week Two	
Unit III -- Plural and adjectival forms -- Lecture outline	Unit III -- Plural and adjectival forms -- Goals
A. Formation of common plural forms	1. The student shall be able to recognize on sight the common plural and adjectival forms of medical terms.
B. Formation of common adjectival forms	
Unit IV -- Reference materials -- Lecture outline	Unit IV -- Reference materials -- Goals
A. Dictionaries	1. Given a list of medical terms, the student shall be able to find them listed in specified references in the library.
1. Types	
2. Usage	
B. Sources of standard terminology	
1. Diagnostic	
2. Operative	
C. Pharmaceutical references	
Unit V -- Terminology of systemic disorders -- Lecture outline	Unit V -- Terminology of systemic disorders -- Goals
A. Infectious diseases	1. The student should be able correctly to define, spell and pronounce basic terms related to systemic disorders.
1. Origin of terms	

Lesson Content

Week Two (continued)

Unit V(A) (continued)

2. Basic terms

3. Diagnostic terms

    a. viral infections

Week Three

    b. bacterial infections

    c. rickettsial infections

    d. fungal infections

    e. protozoal infections

4. Clinical laboratory terms

5. Abbreviations

B. Diseases of connective tissue

    1. Origin of terms

    2. Anatomical terms

    3. Diagnostic terms

    4. Abbreviations

C. Specialists and their specialties

Unit VI -- Disorders of the skin -- Lecture outline

A. Origin of terms

B. Anatomical terms

C. Symptomatic terms

Goals for Students

Unit VI -- Disorders of the skin -- Goals

1. The student should be able correctly to define, spell, and pronounce basic terms related to skin disorders.

Lesson Content

Goals for Students

Week Four

Unit VI (continued)

- D. Diagnostic terms
- E. Operative terms
- F. Abbreviations
- G. Specialists and their specialties

Unit VII -- Disorders of the musculoskeletal system -- Lecture outline

- A. Bones
  - 1. Origin of terms
  - 2. Anatomical terms
  - 3. Symptomatic terms
  - 4. Diagnostic terms
  - 5. Operative terms

Unit VII -- Disorders of the musculoskeletal system -- Goals

1. The student should be able correctly to define, spell, and pronounce basic terms related to musculoskeletal disorders.

Week Five

- B. Joints, bursae, cartilages and ligaments
  - 1. Origin of terms
  - 2. Anatomical terms
  - 3. Symptomatic terms
  - 4. Diagnostic terms
  - 5. Operative terms

Lesson Content

Goals for Students

Week Five (continued)

Unit VII (continued)

- C. Muscles, diaphragm, and tendons
    1. Origin of terms
    2. Anatomical terms
    3. Symptomatic terms
    4. Diagnostic terms
    5. Operative terms
- D. Abbreviations
- E. Specialists and their specialties

Week Six

Unit VIII -- Disorders of the nervous system -- Lecture outline

- A. Nerves
    1. Origin of terms
    2. Anatomical terms
    3. Symptomatic terms
    4. Diagnostic terms
    5. Operative terms
- B. Brain and spinal cord
    1. Origin of terms
    2. Anatomical terms
    3. Symptomatic terms

Unit VIII -- Disorders of the nervous system -- Goals

1. **The student should be able correctly to define, spell and pronounce basic terms related to the nervous system.**

Lesson Content

Goals for Students

Week Six (continued)

Unit VIII(B) (continued)

4. Diagnostic terms

5. Operative terms

C. Radiologic terms

D. Clinical laboratory terms

E. Other diagnostic aids

1. Electroencephalogram

2. Neurologic examination

F. Abbreviations

G. Specialists and their specialties

Week Seven

Unit IX -- Psychiatric disorders -- Lecture outline

A. Origin of terms

B. General terms

C. Symptomatic terms

D. Diagnostic terms

E. Terms related to therapy

1. Shock therapy

2. Psychotherapy

F. Terms related to psychometric tests

G. Abbreviations

H. Specialists and their specialties

Unit IX -- Psychiatric disorders -- Goals

1. The student should be able correctly to define, spell, and pronounce basic terms related to psychiatric disorders.

Lesson Content	Goals for Students
Week Eight	
Unit X -- Disorders of the eye -- Lecture outline	Unit X -- Disorders of the eye -- Goals
A. The eye	1. The student should be able correctly to define, spell, and pronounce basic terms related to disorders of the eye.
1. Origin of terms	
2. Anatomical terms	
3. Symptomatic terms	
4. Diagnostic terms	
5. Operative terms	
B. Accessory structures	
1. Origin of terms	
2. Anatomical terms	
3. Symptomatic terms	
4. Diagnostic terms	
5. Operative terms	
C. Terms related to functional testing	
D. Abbreviations	
E. Specialists and their specialties	
Week Nine	
Unit XI -- Disorders of the ear -- Lecture outline	Unit XI -- Disorders of the ear -- Goals
A. Origin of terms	1. The student should be able correctly to define, spell, and pronounce basic terms related to disorders of the ear.
B. Anatomical terms	
C. Symptomatic terms	

Lesson Content

Goals for Students

Week Nine (continued)

Unit XI (continued)

- D. Diagnostic terms
- E. Operative terms
- F. Terms related to functional testing
- G. Abbreviations
- H. Specialists and their specialties

Week Ten

Unit XII -- Endocrine and metabolic disorders -- Lecture outline

- A. Endocrine glands
  - 1. Origin of terms
  - 2. Anatomical terms
  - 3. Symptomatic terms
  - 4. Diagnostic terms
  - 5. Operative terms
  - 6. Terms related to endocrine function studies
  - 7. Abbreviations
  - 8. Specialists and their specialties

Unit XII -- Endocrine and metabolic disorders -- Goals

1. The student should be able correctly to define, spell, and pronounce basic terms related to endocrine and metabolic disorders.

Week Eleven

- B. Metabolism
  - 1. Origin of terms
  - 2. Symptomatic terms

Lesson Content	Goals for Students

Week Eleven (continued)

Unit XII(B) (continued)

3. Diagnostic terms
4. Terms related to metabolic studies
5. Abbreviations

Unit XIII -- Female genital disorders -- Lecture outline

- A. Vulva and vagina
  1. Origin of terms
  2. Anatomical terms
  3. Symptomatic terms
  4. Diagnostic terms
  5. Operative terms
- B. Uterus and supporting structures
  1. Origin of terms
  2. Anatomical terms
  3. Symptomatic terms
  4. Diagnostic terms
  5. Operative terms

Unit XIII -- Female genital disorders -- Goals

1. The student should be able correctly to define, spell, and pronounce basic terms related to female genital disorders.

Week Twelve

- C. Ovaries and uterine tubes
  1. Origin of terms
  2. Anatomical terms
  3. Symptomatic terms

Lesson Content

Goals for Students

Week Twelve (continued)

Unit XIII(C) (continued)

   4. Diagnostic terms
   5. Operative terms
- D. Breast
   1. Origin of terms
   2. Anatomical terms
   3. Symptomatic terms
   4. Diagnostic terms
   5. Operative terms
- E. Radiologic terms
- F. Clinical laboratory terms
- G. Abbreviations
- H. Specialists and their specialists

Unit XIV -- Male genital disorders
-- Lecture outline

- A. Origin of terms
- B. Anatomical terms
- C. Symptomatic terms
- D. Diagnostic terms
- E. Operative terms
- F. Abbreviations

Unit XIV -- Male genital disorders
-- Goals

1. The student should be able correctly to define, spell, and pronounce basic terms related to male genital disorders.

Week Thirteen

Lesson Content	Goals for Students
Unit XV -- Genetic disorders -- Lecture outline	Unit XV -- Genetic disorders -- Goals
A. Origin of terms	1. The student should be able correctly to define, spell, and pronounce basic terms related to genetic disorders.
C. Cytogenetic terms	
C. Diagnostic terms	
Unit XVI -- Maternal, antenatal and postnatal disorders Lecture outline	Unit XVI -- Maternal, antenatal and postnatal disorders -- Goals
A. Pregnancy, delivery and puerperium	1. The student should be able correctly to define, spell, and pronounce basic terms related to maternal, antenatal and postnatal disorders.
1. Origin of terms	
2. Anatomical terms	
3. General terms	
4. Symptomatic terms	
5. Diagnostic terms	
6. Operative terms	
B. Antenatal period	
1. Origin of terms	
2. Anatomical terms	
3. Diagnostic terms	
4. Terms related to special procedures	
C. Postnatal period	
1. Origin of terms	
2. Anatomical terms	

Lesson Content

Goals for Students

Week Thirteen (continued)

Unit XVI(C) (continued)

3. Symptomatic terms
4. Diagnostic terms
5. Operative terms

D. Radiologic terms

E. Clinical laboratory terms

1. Terms related to pregnancy and sterility tests
2. Terms related to prenatal, antenatal and postnatal tests

F. Abbreviations

G. Specialists and their specialties

Week Fourteen

Unit XVII -- Radiologic terms -- Lecture outline

A. General terms

B. Equipment, supplies, and substances used

C. Diagnostic procedures

D. Therapeutic procedures

E. Abbreviations

F. Specialists and their specialties

Unit XVII -- Radiologic terms -- Goals

1. The student should be able correctly to define, spell, and pronounce basic terms related to diagnostic and therapeutic use of radiant energy.

Lesson Content	Goals for Students
Week Fifteen	
Unit XVIII -- Cardiovascular disorders -- Lecture outline	Unit XVIII -- Cardiovascular disorders -- Goals
A. Heart and coronary arteries 1. Origin of terms 2. Anatomical terms 3. Symptomatic terms 4. Diagnostic terms 5. Operative terms 6. Terms related to special procedures	1. The student should be able correctly to define, spell, and pronounce basic terms related to cardiovascular disorders.
B. Arteries, capillaries and veins 1. Origin of terms 2. Anatomical terms 3. Symptomatic terms 4. Diagnostic terms 5. Operative terms	
C. Radiologic terms	
D. Clinical laboratory terms	
E. Terms related to special recording of heart action	
F. Abbreviations	
G. Specialists and their specialties	

Lesson Content	Goals for Students
Week Sixteen	
Unit XIX -- Disorders of blood and blood-forming organs -- Lecture outline	Unit XIX -- Disorders of blood and blood-forming organs -- Goals
A. Blood 1. Origin of terms 2. Anatomical terms 3. Symptomatic terms 4. Diagnostic terms 5. Terms relating to transfusions	1. The student should be able correctly to define, spell, and pronounce basic terms related to disorders of blood and blood-forming organs.
B. Lymphatic channels and lymph nodes 1. Origin of terms 2. Anatomical terms 3. Symptomatic terms 4. Diagnostic terms 5. Operative terms	
C. Spleen 1. Origin of terms 2. Anatomical terms 3. Symptomatic terms 4. Diagnostic terms 5. Operative terms	

Lesson Content | Goals for Students

Week Sixteen (continued)

Unit XIX (continued)

- D. Clinical laboratory terms
  - 1. Terms related to hematology
  - 2. Terms related to blood grouping
  - 3. Terms related to miscellaneous tests
- E. Abbreviations
- F. Specialists and their specialties

Week Seventeen

Unit XX -- Terms related to nuclear medicine -- Lecture outline

- A. General terms
- B. Equipment, supplies, and substances used
- C. Terms related to radioisotope scanning
- D. Terms related to radioisotopes in diagnostic tests
- E. Abbreviations
- F. Specialists and their specialties

Unit XX -- Terms related to nuclear medicine -- Goals

1. The student should be able correctly to define, spell, and pronounce basic terms related to nuclear medicine.

Unit XXI -- Respiratory disorders -- Lecture outline

- A. Nose
  - 1. Origin of terms

Unit XXI -- Respiratory disorders -- Goals

1. The student should be able correctly to define, spell, and pronounce basic terms related to respiratory disorders

Lesson Content | Goals for Students

Week Seventeen (continued

Unit XXI(A) (continued)

  2. Anatomical terms
  3. Symptomatic terms
  4. Diagnostic terms
  5. Operative terms

B. Paranasal sinuses
  1. Origin of terms
  2. Anatomical terms
  3. Diagnostic terms
  4. Operative terms

C. Larynx
  1. Origin of terms
  2. Anatomical terms
  3. Symptomatic terms
  4. Diagnostic terms
  5. Operative terms

D. Trachea
  1. Origin of terms
  2. Anatomical terms
  3. Diagnostic terms
  4. Operative terms

E. Bronchi
  1. Origin of terms

Lesson Content | Goals for Students

Week Seventeen (continued)

Unit XXI(E) (continued)

2. Anatomical terms
3. Diagnostic terms
4. Operative terms

Week Eighteen

F. Lungs
    1. Origin of terms
    2. Anatomical terms
    3. Symptomatic terms
    4. Diagnostic terms
    5. Operative terms
G. Pleura
    1. Origin of terms
    2. Anatomical terms
    3. Symptomatic terms
    4. Diagnostic terms
    5. Operative terms
H. Radiologic terms
I. Clinical laboratory terms
J. Abbreviations
K. Specialists and their specialties

Lesson Content	Goals for Students

Week Eighteen (continued)

Unit XXII -- Inhalation therapy -- Lecture outline

- A. General terms
- B. Equipment and supplies used
- C. Terms related to treatment
- D. Abbreviations
- E. Specialists and their specialties

Unit XXII -- Inhalation therapy -- Goals

1. The student should be able correctly to define, spell, and pronounce basic terms related to inhalation therapy.

Week Nineteen

Unit XXIII -- Digestive disorders -- Lecture outline

- A. Mouth
  - 1. Origin of terms
  - 2. Anatomical terms
  - 3. Diagnostic terms
  - 4. Operative terms
- B. Salivary glands
  - 1. Origin of terms
  - 2. Anatomical terms
  - 3. Symptomatic terms
  - 4. Diagnostic terms
  - 5. Operative terms
- C. Pharynx
  - 1. Origin of terms
  - 2. Anatomical terms

Unit XXIII -- Digestive disorders -- Goals

1. The student should be able correctly to define, spell, and pronounce basic terms related to digestive disorders.

Lesson Content | Goals for Students

Week Nineteen (continued)

Unit XXIII(C) (continued)

3. Symptomatic terms
4. Diagnostic terms
5. Operative terms

D. Esophagus

1. Origin of terms
2. Anatomical terms
3. Symptomatic terms
4. Diagnostic terms
5. Operative terms

E. Stomach

1. Origin of terms
2. Anatomical terms
3. Symptomatic terms
4. Diagnostic terms
5. Operative terms

F. Small and large intestines

1. Origin of terms
2. Anatomical terms
3. Symptomatic terms
4. Diagnostic terms
5. Operative terms

Lesson Content

Goals for Students

Week Nineteen (continued)

Unit XXIII (continued)

G. Liver, biliary system, pancreas and peritoneum

1. Origin of terms
2. Anatomical terms
3. Symptomatic terms
4. Diagnostic terms
5. Operative terms

H. Radiologic terms

I. Clinical laboratory terms

J. Abbreviations

K. Specialists and their specialties

Week Twenty

Unit XXIV -- Urinary disorders -- Lecture outline

A. Kidneys

1. Origin of terms
2. Anatomical terms
3. Symptomatic terms
4. Diagnostic terms
5. Operative terms

B. Ureters

1. Origin of terms
2. Anatomical terms

Unit XXIV -- Urinary disorders -- Goals

1. The student should be able correctly to define, spell, and pronounce basic terms related to urinary disorders.

Lesson Content | Goals for Students

Week Twenty (continued)

Unit XXIV(B) (continued)

3. Symptomatic terms
4. Diagnostic terms
5. Operative terms

C. Bladder and urethra

1. Origin of terms
2. Anatomical terms
3. Symptomatic terms
4. Diagnostic terms
5. Operative terms

D. Radiologic terms

E. Clinical laboratory terms in relation to

1. Urinalyses
2. Renal function studies

F. Abbreviations

G. Specialists and their specialties

Week Twenty-one

Unit XXV -- Anesthesiology -- Lecture outline

A. Origin of terms

B. General terms

C. Abbreviations

D. Specialists and their specialties

Unit XXV -- Anesthesiology -- Goals

1. The student should be able correctly to define, spell, and pronounce basic terms related to anesthesiology.

Week Twenty-one (continued)

Lesson Content	Goals for Students
Unit XXVI -- Physical medicine and rehabilitation -- Lecture outline	Unit XXVI -- Physical medicine and rehabilitation -- Goals
A. Origin of terms B. General terms C. Types of therapy D. Abbreviations E. Specialists and their specialties	1. The student should be able correctly to define, spell, and pronounce basic terms related to physical medicine and rehabilitation.
Unit XXVII -- Oncology -- Lecture outline	Unit XXVII -- Oncology -- Goals
A. Origin of terms B. General terms C. Abbreviations D. Specialists and their specialties	1. The student should be able correctly to define, spell, and pronounce basic terms related to oncology.

A 204

HEALTH SERVICES AND ETHICS

Course Description

Course content:	The first part of this course will deal with an explanation of the role and function played by the various categories of allied health disciplines that comprise allied health programs. A study of community health resources will also be included. The latter part of the course will deal with imparting an understanding of all aspects of medical ethics including hospital professionalism and ethical therapist-patient interrelationship where applicable. The student shall also be introduced to the various library resources and keys to the use of each and shall be asked to prepare a written bibliography on an assigned topic.
Credits:	One quarter credit for one quarter.
Instructor:	Katherine H. Anderson, M.D., and guest lecturers.
Class period:	One 50-minute lecture period per week for one quarter.
Methods of presentation:	Lectures and films.
Evaluation:	None.

Objectives

The student shall:

1. be able verbally to differentiate the roles played by members of an allied health team in relation to the physician and nurse in a hospital or office environment;
2. become acquainted with community resources available to patients and their families and be able to compare by discussion the value of each program and how each may be utilized by both parties;
3. better understand his personal development of moral and ethical behavior in his selected profession;
4. become skilled in using the resource material available in the library. He must be able to obtain references and write course-related papers without aid of an instructor.

Textbook and references

None.

Audiovisuals

UNIT II

Cytology Training Film. National Careers in Medical Technology. (Film.)

In a Medical Laboratory. Churchill Film Productions. (Film.)

UNIT III

Reflections of Hope. Haycox Photoramic Inc. (Film.)

A 204
HEALTH SERVICES AND ETHICS

Lesson Content

Goals for Students

Week One

Unit I -- History of medical care -- Lecture outline

- A. The physician
  - 1. The evolving role of the physician from the time of Hippocrates to the nineteenth century
  - 2. The role of the physician from the nineteenth century to the present
- B. Advent of nursing care
- C. Evolution of hospitals
- D. Emergence of health care teams

Unit I -- History of medical care -- Goals

1. The student shall gain an overview of the history of medical practice from ancient to modern times

Week Two

Unit II -- The health team -- Lecture outline

- A. Inhalation therapist
  - 1. Professional training
  - 2. Role of the inhalation therapist in the health team
- B. Nurse anesthetist
  - 1. Professional training
  - 2. Role of nurse anesthetist in the health team

Unit II -- The health team -- Goals

1. The student shall be able to list the functions of the various members of the health team, the interrelationships of the individual services and the resources afforded by them.

Lesson Content | Goals for Students

Week Two (continued)

Unit II (continued)

C. Radiologic technologist

1. Professional training

2. Role of radiologic technologist in the health team

D. Nuclear medicine technician

1. Professional training

2. Role of nuclear medicine technician in the health team

Week Three

E. Medical technologist

1. Professional training

2. Role of the medical technologist in the health team

F. Cytotechnologist

1. Professional training

2. Role of the cytotechnologist in the health team

G. Medical record administrator

1. Professional training

2. Role of the medical record administrator in the health team

H. Physician's assistant

1. Professional training

2. Role of the physician's assistant in the health team

Lesson Content

Week Four

Unit III -- Community resources -- Lecture outline

A. Environmental health

1. Services available through local health departments
    - a. clinical facilities
    - b. home services
    - c. educational opportunities
2. The role of the local health departments in relation to the health team concept

B. Comprehensive health care

1. Various programs available at local, state, and national levels
2. Participating organizations in community health care

Week Five

C. Department of social services

1. Staff and duties
2. Services available
    - a. applications for assistance
    - b. utilization of funds
3. Interrelationship with hospital health team

Goals for Student

Unit III -- Community resources -- Goals

1. The student shall be able to name the community health services available to him as a student and later as a professional individ to patients and to families of patients.
2. The student shall also be able to discuss with physicians and patients how such services can benefit the people to whom they are available.

Week Six

Lesson Content

Unit IV -- Current drug scene -- Lecture outline

- A. Overview of problem
  - 1. National
  - 2. Local
- B. Specific problems with given group of drugs
- C. Solving the drug problem
  - 1. Role of the health team
  - 2. Role of community resources

Goals for Students

Unit IV -- Current drug scene -- Goals

1. Problems caused by current drug abuse should be identifiable by the student.
2. The student should be capable, given a list of choices, of recognizing symptoms of overdose of specific drugs.
3. The student should also be able to indicate some possible solutions to drug problems as they exist in various age and socio-economic groups.
4. Roles of various members of the health team in aiding the user and educating the general public to the hazards of drug abuse shall be compared by the student.

Week Seven

Unit V -- Ethics -- Lecture outline

- A. Manners and habits of the professional individual
  - 1. Acquisition of mature attitude
  - 2. Consideration for patients along with a sense of humanity
  - 3. Self-evaluation in relation to professional life

Unit V -- Ethics -- Goals

1. The student shall be able to evaluate in his mind the ethical role of his profession so as to form attitudes and habits most conducive to humane medical practices.

Lesson Content

Goals for Students

Week Eight

Unit V (continued)

- B. Professional ethics
    1. Personal aspects
    2. Relationships with other professional individuals
    3. Medicolegal aspects of professional situation

Week Nine

Unit VI -- Use of library -- Lecture outline

- A. Keys to library resources
    1. Card catalog
    2. Library of Congress cataloging system
    3. Dewey decimal system

Unit VI -- Use of library -- Goals

1. The student shall become familiar with the organization of the library and with the information resources available therein, in order to make efficient use of this tool.
2. Given a list of instructions for preparing a bibliography, the student must write a bibliography related to an assigned topic in his chosen field of study.

Week Ten

- B. Keys to professional journals
    1. Abstracts
    2. Science Citation Index
    3. Index Medicus

Week Eleven

- C. Audiovisual resources
    1. Videotapes
    2. Filmstrips
    3. Films
    4. Carrel displays

PA 205 I & II
CLINICAL LABORATORY PROCEDURES

Course Description

Course content:	The student is introduced to theory, laboratory exercises and practical applications of performing routine laboratory work. Areas included for study are elementary microbiology and parasitology, urinalysis, hematology and rudimentary clinical chemistry. Each student executes various clinical methods concerning the forementioned areas.
Credits:	Two quarter credits for each of two quarters.
Instructor:	Mrs. Nancy G. Dennis, B.S., ASCP.
Class period:	One 50-minute lecture period and one 110-minute laboratory period per week for two quarters.
Methods of presentation:	Lectures, laboratory demonstrations, films, and laboratory exercises.
Evaluation:	Unannounced quizzes, unit quizzes, and a final examination each quarter.

Objectives

The student shall:

1. obtain a knowledge of the principles of routine clinical laboratory procedures and utilize such knowledge in determining what procedures should be employed to establish a diagnosis of diseases most commonly seen by him;
2. be able to do routine bacterial plating and be able to identify the most common types of bacteria which may grow thereon;
3. be able to perform an accurate routine urinalysis;
4. be able to perform an accurate routine blood examination;
5. be able to perform screening blood chemistry tests.

Textbook

Ravel. Clinical Laboratory Medicine. Year Book Medical Publishers, Chicago. 1969. (Required text.)

References

Davidsohn and Henry. Todd-Sanford Clinical Diagnosis by Laboratory Methods. 14th ed. W. B. Saunders Company, Philadelphia. 1969.

Lynch, Raphael, Mellor, Spare and Inwood. Medical Laboratory Technology and Clinical Pathology. 2d ed. W. B. Saunders Company, Philadelphia. 1969.

Audiovisuals

UNIT I

Hookworm. N. C. State Board of Health. (Film.)

UNIT II

The Urine Examination. Wayne State University. (Film.)

UNIT IV

Gastric Secretion. I. C. I. (New York), Inc. Film Library. (Film.)

PA 205 I & II
CLINICAL LABORATORY PROCEDURES

Week One

Lesson Content

Unit I -- Bacteriology -- Lecture outline

A. Introduction to bacteriology

   1. Introduction to equipment and demonstration of procedures and techniques for throat cultures

   2. Practice in "dry run" streaking of blood plates

Goals for Students

Unit I -- Bacteriology -- Goals

1. Each student should be able to inoculate routine cultures, especially throat cultures, and be able to identify several specific organisms.

   a. α-*Streptococcus*

   b. β-*Streptococcus*

   c. *Staphylococcus*

   d. *Diplococcus pneumoniae*

   e. *Haemophilus influenzae*

   f. *Proteus*

   g. *Pseudomonas*

Week Two

Lesson Content

B. Bacteriology

   1. Gram positive and negative organisms

   2. Practical work

      a. performance of throat culture, including incubation of culture until the following class day

      b. reading of plates from previous class day; subculture and gram stain of each plate

      c. study of known cultures obtained from bacteriology laboratory in hospital

Goals for Students

2. The student should be able to do gram stains and microscopically identify the organisms.

3. *Candida albicans* is the most important fungus studied and the student should be able to recite the symptoms caused by this fungus in man.

4. The student should recognize with a microscope the commonly encountered parasites and be able to list from memory the symptoms such parasites can produce in man.

Lesson Content | Goals for Students

Week Three

Unit I(B) (continued)

3. Study of cultures from hospital laboratory
    a. α-*Streptococcus*
    b. β-*Streptococcus*
    c. *Staphylococcus*
    d. *Diplococcus pneumoniae*
    e. *Haemophilus influenzae*
    f. *Proteus*
    g. *Pseudomonas*
4. Gram stain of four of the organisms
5. Demonstration of sensitivity plates

Week Four

6. Practical bacteriology exercises

Week Five

C. Mycology

1. Study of three types of fungus
    a. dermatophytes
    b. systemic fungi
    c. intermediate fungi
2. Positive cultures to be shown for morphology on media

Lesson Content Goals for Students

Week Six

Unit I (continued)

D. Parasitology

1. Discussion of two types of parasites with specific examples in detail in each group
    - a. Protozoa
    - b. Helminths
2. Introduce the student to parasitology by utilizing prepared slides showing ova and adult parasites

Week Seven

E. Serology -- primarily tests for syphilis

Week Eight

F. Field trip to hospital laboratories

1. Bacteriology
2. Mycology
3. Parasitology
4. Serology
5. Cytology

Lesson Content

Goals for Students

Week Nine

Unit II -- Cerebrospinal fluid analysis, urinalysis and fecal examination -- Lecture outline

A. Cerebrospinal fluid analysis and urinalysis
    1. Spinal fluids
        a. collection
        b. laboratory examination
    2. Beginning lecture on urines
        a. collection
        b. storage
        c. routine examination
    3. Discussion of pathological conditions

Unit II -- Cerebrospinal fluid analysis, urinalysis and fecal examination -- Goals

1. Given a urine specimen, the student must be able accurately to perform routine urinalyses, both macroscopically and microscopically.
2. The dip stick methods are to be used with an understanding of the principles involved.
3. Utilizing a microscope, the student shall be able to recognize white blood cells, red blood corpuscles, casts and epithelial cells in the urinary sediment.
4. The student should be able to perfor the test for blood in fecal specimen and recognize positive and negative results.

Week Ten

B. Practical work
    1. Testing of spinal fluids obtained from main laboratory
    2. Routine macroscopic examination of urines
        a. quantity
        b. color
        c. appearance
        d. pH
        e. specific gravity
        f. protein
        g. sugar
        h. blood

Lesson Content　　　　Goals for Students

Week Eleven

Unit II (continued)

C. Continuation of urinalysis, covering microscopic examination, with emphasis on normal urines

D. Macroscopic and microscopic tests of each student's urine

  1. Macroscopic examination

  2. Microscopic examination

    a. casts

    b. white blood cells

    c. red blood corpuscles

    d. crystals

    e. epithelial cells

    f. mucous threads

Week Twelve

E. Abnormal urines

  1. Pathological laboratory findings in urinalysis

  2. Discussion of normal and abnormal values in quantitative tests

  3. Urinalysis of abnormal urines from hospital laboratory

Week Thirteen

F. Fecal examination

  1. Discussion of general tests done in routine laboratory

  2. Tests of fecal specimens from hospital laboratory, stressing the importance of the appearance of blood

Lesson Content | **Goals for Students**

Week Fourteen

Unit III -- Hematology -- Lecture outline

A. Introduction to hematology

  1. Basic discussion of types of cells and their morphology

  2. Detailed discussion of red blood corpuscles, white blood cells and platelets

Unit III -- Hematology -- Goals

1. Each student shall be able to do finger sticks and venipunctures utilizing aseptic techniques.

2. Given a blood sample, the student shall be able to do routine blood counts (white blood cells, red blood corpuscles and reticulocytes) with a high degree of accuracy.

Week Fifteen

  3. Explanation of a complete blood count

  4. Demonstration of finger and ear sticks

  5. Discussion and demonstration of hematocrit and hemoglobin methods

  6. Discussion of indices

  7. Explanation of sedimentation rate

B. Practical work

  1. Practice of finger sticks

  2. Filling of capillary hematocrit tubes and white blood cell and red blood corpuscle pipets

3. The student should be able to perform differentials on blood smears with a high degree of accuracy, seeking aid when he cannot identify a cell.

4. After collecting accurate basic data, the student should be able to compute indices.

5. The student should be able to recognize abnormal red blood corpuscles and white blood cells as such.

6. In the blood banking, the student should be able to type and to do Rh factor typing.

7. The student should be able adequately to explain to a laboratory technician what the principles of crossmatching are and the importance of such.

Lesson Content | Goals for Students

Week Sixteen

Unit III (continued)

- C. Calculation of cell counts
    - 1. Explanation of calculation of results of white blood cell and red blood corpuscle counts
    - 2. Discussion of counting chamber
    - 3. Discussion of normal values
- D. Practical work
    - 1. Practice of finger sticks, white blood cell counts and red blood corpuscle counts on one another
    - 2. Calculation of indices

Week Seventeen

- E. Blood smear and differential
    - 1. Blood smear technique
        - a. preparing the smear
        - b. staining the smear
    - 2. Counting the 100 cells
    - 3. Discussion of additional cells
        - a. nucleated red blood corpuscles
        - b. abnormal lymphocytes of infectious mononucleosis
        - c. immature neutrophils
        - d. blast cells

Lesson Content Goals for Students

Week Seventeen (continued)

Unit III (continued)

F. Practical work --
making, staining and counting differentials on slides and coverslips

Week Eighteen

G. Study of abnormal blood counts in relation to specific diseases

1. Leukemias

2. Anemias

H. Performance of differentials upon abnormal smears; reticulocyte counts

Week Nineteen

I. Demonstrations and practicum

1. Visits to hematology and urine laboratories, blood bank, blood and collecting areas

2. Observation by students of blood collection in hospital

3. Practice of venipuncture on one another, using vacutainers and syringes

Week Twenty

J. Coagulation

1. Principles of coagulation

2. Plasma and serum

a. clotting tests

b. techniques of such tests

Lesson Content

Goals for Students

Week Twenty (continued)

Unit III (continued)

K. General blood banking -- basic technique for typing and cross-matching, including students' typing their own blood

Week Twenty-One

Unit IV -- Clinical chemistry -- Lecture outline

A. Introduction to clinical chemistry

B. Tests

1. Glucose

2. BUN

3. Uric acid

4. Electrolytes

5. Enzymes

C. Explanation of different methods of analysis

D. Discussion of automated equipment

E. Discussion of specific tests, including bases, indications and normal values

1. Glucose tolerance

2. Bilirubin

F. Application of dip stick methods in clinical chemistry to be demonstrated

Unit IV -- Clinical chemistry -- Goals

1. The student shall be able to do dip stick methods for BUN, glucose, and bilirubin and shall be able to verbally explain the chemical reaction involved with each.

2. Various clinical conditions which call for a glucose tolerance test are to be memorized by the student and the normal values from such a test as well as the physiology behind normal and abnormal values are also to be committed to memory.

Lesson Content

Goals for Students

Week Twenty-two

Unit IV (continued)

G. Visits to clinical chemistry and gastric analysis laboratories

H. Nasogastric tube

1. Demonstration of insertion
2. Demonstration of aspiration of gastric contents

A 130 I & II
DRUGS AND REACTIONS
(PHARMACOLOGY)

Course Description

Course content:	The student is made aware of the general concepts involved in the action of various drug groups on human systems. These general principles are then applied to specific drugs used in the treatment of disorders, with stress being placed on indications, contraindications, side effects, symptoms of toxicity and antidotes.
Credits:	Two quarter credits for each of two quarters.
Instructor:	Harriet M. Ammann, M.S., Ph. D.
Class period:	Two 50-minute lecture periods per week for two quarters.
Methods of presentation:	Lectures and films.
Evaluation:	Unit quizzes and a final examination each quarter.

Objectives

The student shall:

1. correlate the action of drug groups with physiological changes produced by the various groups;
2. become familiar with indications and contraindications for particular drugs in therapeutic situations;
3. become knowledgeable in discussing and recognizing side effects of specific drugs, symptoms of overdose and antidotes to be used to counter such effects.

Textbook

Goth. Medical Pharmacology. 5th ed. C. V. Mosby Company, St. Louis. 1970. (Required text.)

References

Meyers, Jawetz and Goldfien. Review of Medical Pharmacology. 2d ed. Lange Medical Publications, Los Altos, California. 1970.

Musser and O'Neill. Pharmacology and Therapeutics. 4th ed. MacMillan Company, New York. 1969.

Krontz and Carr. The Pharmacologic Principles of Medical Practice. 7th ed. The Williams and Wilkins Company, Baltimore. 1969.

Audiovisuals

Videotapes from The Network for Continuing Medical Education, through The Bowman Gray School of Medicine, North Carolina Baptist Hospital, Winston-Salem, North Carolina, as well as the following 8mm films all produced by the University of Washington, Seattle, Washington:

UNIT I

Factors in Modifying Pharmacology Response.

UNIT III

Biological Variation and the Therapeutic Index.

UNIT IV

Adrenergic and Cholinergic Drugs on Perfused Mammalian Heart.
Drug Action on Adrenergic Systems.
Drug Action on Cholinergic Systems.
Drug Action on Neuromuscular Transmission.
Drug Modification Autonomic Function.
Introduction to Neuromuscular Pharmacology.

UNIT V

Drugs on Heart.

UNIT VIII

Pharmacology in Anesthesia.
Regional Anesthesia.

UNIT XII

Systemic Antidotal Therapy.

A 130 I & II
DRUGS AND REACTIONS
(PHARMACOLOGY)

Lesson Content | Goals for Students

Week One

Unit I -- General aspects of pharmacology -- Lecture outline

- A. Introduction
  - 1. Definitions
  - 2. Divisions
  - 3. Historical development
- B. Basic mechanisms of drug action
  - 1. Sites of drug action on biologic systems
  - 2. Quantitative aspects of drug potency and efficacy
  - 3. Selectivity
  - 4. Agonist, antagonist and partial agonist

Unit I -- General aspects of pharmacology -- Goals

By examining dose-response curves of specific drugs, the student must be able to recognize and select agonists and antagonists and to list differences between the concepts of potency and efficacy as shown in these curves.

Week Two

Unit II -- Drug absorption, metabolism and excretion -- Lecture outline

- A. Kinetics of drug distribution
  - 1. Passage of drugs across body membranes
    - a. passive transfer
    - b. specialized transport

Unit II -- Drug absorption, metabolism and excretion -- Goals

1. The student should be able to trace from memory the distribution of drugs administered by oral, subcutaneous, intramuscular and intravenous routes in terms of basic phylogic transport mechanisms.
2. The student must be able to list from memory those factors which affect biologic half-lives of drugs and to relate these to compartmentalization of specific drugs within the human body.

Lesson Content

Goals for Students

Week Two (continued)

Unit II(A) (continued)

2. Absorption
    a. from gastrointestinal tract
    b. with parenteral administration
3. Distribution of drugs in the body

Week Three

4. Excretion of drugs
5. Drug disappearance curves

B. Drug metabolism

C. Enzyme induction

D. Pharmacogenetics

Week Four

Unit III -- Drug safety and efficacy -- Lecture outline

A. Drug safety
    1. Development of new drugs
        a. animal studies
            (1) acute, subacute and chronic toxicity
            (2) therapeutic index
        b. human studies (clinical pharmacology)
            (1) pharmacologic evaluation
            (2) controlled clinical evaluation

Unit III -- Drug safety and efficacy -- Goals

1. The student should be able to outline the processes used in animal and clinical tests for determining toxicity levels of drugs and those tests used in the evaluation of new drugs.
2. Given descriptions of anomalous responses to drugs, the student must be able to relate these to biologic variations, hypersusceptibility, drug idiosyncracy, allergy, age and weight of patients as well as disease processes influencing response to drugs.

Lesson Content

Goals for Students

Week Four (continued)

Unit III (continued)

B. Factors influencing the safety and effectiveness of drugs
    1. Biologic variation
    2. Hypersusceptibility
    3. Drug idiosyncracy
    4. Drug allergy
    5. Age and weight of patient
    6. Disease processes influencing susceptibility and detoxification

3. The student shall be able to define such drug interactions as synergism and antagonism in terms of effect on cell drug receptor sites. He must be able to distinguish these kinds of interactions from chemical and physiological competitions.

Week Five

C. Effects of other drugs
    1. Synergism
    2. Antagonism
    3. Complex drug interactions

D. Cumulation, tolerance and tachyphylaxis

Week Six

Unit IV -- Neuropharmacology -- Lecture outline

A. General aspects of neuropharmacology
    1. Development of transmitter concept
    2. Evidence for chemical transmission

Unit IV -- Neuropharmacology -- Goals

1. Without references the student shall be able to diagram the concept of electrochemical transmission of nerve impulses and relate these to transmitters active in the sympathetic and parasympathetic nervous systems.

Lesson Content

Goals for Students

Week Six (continued)

Unit IV(A) (continued)

3. Sites of action of chemical mediators

4. Factors influencing response to chemical mediators

   a. denervation supersensitivity

   b. sensitization by drugs

2. The student must be able to explain, from memory, the mechanism of action of cholinergic drugs and cholinesterase inhibitors. Given descriptions of overdose or cholinergic poisoning and side effects, he must be able to distinguish these symptoms from other types of reactions, and must be able to propose proper antidotal treatment.

Week Seven

B. Classification of neuropharmacologic drugs

C. Cholinergic drugs

1. Directly acting cholinergic drugs

   a. choline esters

   b. pilocarpine and muscarine

2. Cholinesterase inhibitors

   a. physostigmine, neostigmine and related drugs

   b. organophosphorus anticholinesterases

      (1) pharmacologic effects

      (2) antidotal action of pralidoxime

      (3) medical uses of organophosphates

3. In similar manner, the student shall be able to recognize descriptions of effects of catecholamines on vascular tissue, non-vascular smooth muscle, exocrines, and the heart, and be able to suggest antidotal treatment for overdose, given the symptoms.

4. Given descriptions of desired response to drugs in specific clinical situations, the student must be able to suggest specific drugs which will produce these responses, i.e. ganglionic, neuromuscular or adrenergic (α and β) blocking agents, or central nervous system based skeletal muscle depressants.

Lesson Content | Goals for Students

Week Seven (continued)

Unit IV (continued)

D. Adrenergic drugs

   1. Catecholamines

      a. occurrence and physiologic functions

      b. pharmacologic actions

         (1) adrenergic receptors

         (2) cardiovascular effects

         (3) bronchodilator effects

         (4) other smooth muscle effects

         (5) effects on glands

         (6) metabolic actions

   2. Metabolism

   3. Therapeutic applications

      a. vasoconstrictor uses

      b. cardiac uses

      c. bronchodilator action

   4. Catecholamines and disease states

      a. hypertension

      b. pheochromocytoma

E. Miscellaneous adrenergic drugs

   1. Classification based on clinical usage

Lesson Content | Goals for Students

Week Seven (continued)

Unit IV(E)(1) (continued)

- a. vasoconstrictors
  - (1) phenylephrine
  - (2) methoxamine
  - (3) mephentermine
  - (4) metaminol
  - (5) nasal vasoconstrictors
- b. bronchodilators
  - (1) isoproterenol
  - (2) other bronchodilators
- c. vasodilators
- d. adrenergic central nervous system stimulants and amphetamines

F. Structure-activity relationships

G. Atropine group of cholinergic blocking drugs

- 1. General description
- 2. Atropine and scopolamine
  - a. chemistry
  - b. mode of action
  - c. clinical pharmacology
  - d. absorption, excretion and metabolism
  - e. preparations and clinical uses
  - f. toxicity

Lesson Content | Goals for Students

Week Eight

Unit IV(G) (continued)

3. Atropine substitutes
    - a. atropine-like midriatics
    - b. anticholinergic smooth muscle relaxant

Week Nine

H. Ganglionic blocking agents

I. Neuromuscular blocking agents

J. Skeletal muscle depressants acting on central nervous system

K. Adrenergic blocking agents
  1. General concept
  2. Alpha adrenergic blocking agents
  3. Beta adrenergic blocking agents

Week Ten

Unit V -- Drugs affecting hypertension and antihistamines -- Lecture outline

A. Pharmacologic approach to hypertension
  1. Relation of angiotensin and aldosterone to hypertension
  2. Sites of action of hypertensive drugs

B. Histamine and hypotensive drugs

C. Antihistamic drugs

Unit V -- Drugs affecting hypertension and antihistamines -- Goals

1. The student must be able to list factors involved in the development of hypertension and relate the treatment of this condition to hypotensive peptides and antihistamic drugs.

Week Eleven

Lesson Content

Unit VI -- Psychopharmacology -- Lecture outline

- A. Amine metabolism and the nervous system
  - 1. Amines that occur in neural tissue
- B. Tranquilizing drugs
  - 1. General concept
  - 2. Phenothiazine derivatives
  - 3. Phenothiazine tranquilizers
  - 4. Reserpine and related drugs
  - 5. Central muscle relaxants
  - 6. Miscellaneous sedatives
- C. Antidepressants and psycotomimetic drugs
  - 1. General concept
  - 2. Antidepressants -- hydrazine MAO inhibitors
  - 3. Non-hydrazine MAO inhibitors
  - 4. Psychomotor stimulants
  - 5. Psychotomimetic drugs
- D. Hypnotic drugs
  - 1. General considerations
  - 2. Barbiturates
  - 3. Non-barbiturate hypnotics
  - 4. Bromides
  - 5. Chloral hydrate and paraldehyde
  - 6. Ethyl alcohol and other alcohols

Goals for Students

Unit VI -- Psychopharmacology -- Goals

1. The student should be able to relate the neurotransmitting amines to similar compounds used for mood alteration. Given symptoms of toxic effects, he should be able to distinguish among those of the various major and minor tranquilizers and the barbiturates and propose appropriate therapy and withdrawal.

Lesson Content

Goals for Students

Week Twelve

Unit VII -- Drugs affecting the central nervous system -- Lecture outline

- A. Central nervous system stimulants -- convulsant types
- B. Antiepileptic drugs
- C. Addictive analgesic drugs
  - 1. Opiates -- natural and synthetic derivatives
    - a. chemistry
    - b. central nervous system effects
    - c. other effects
  - 2. Other opiates
  - 3. Contemporary drug abuse
  - 4. Nonaddictive analgesics and anti-inflammatory drugs

Unit VII -- Drugs affecting the central nervous system -- Goals

1. The student shall be able to distinguish between physical and psychological dependence on various drugs and be able to list signs of addiction. Given symptoms of overdose of opiates, stimulants and depressants, the student must be able to recognize the type of drug involved.

Week Thirteen

nit VIII -- Anesthetics -- Lecture outline

- A. General concepts
- B. General anesthesia
  - 1. Uptake, distribution and elimination of inhalation anesthetics
  - 2. Stages and signs of anesthesia

Unit VIII -- Anesthetics -- Goals

1. The student must be able to explain induction and maintenance of general anesthesia in terms of compartmentalization and solubility coefficients; he should be able to list in proper sequence the stages of anesthesia. He should also be able to differentiate general from local anesthesia and explain the latter's mechanism of action.

Lesson Content

Goals for Students

Week Thirteen (continued)

Unit VIII(B) (continued)

3. Duration and action of intravenous anesthetics

4. Methods of administration of general anesthetics

C. Pharmacology of local anesthesia

1. Classification

2. Methods of administration

3. Mode of action

4. Absorption, fate and excretion

5. Clinical characteristics of commonly used local anesthetics

Week Fourteen

Unit IX -- Drugs used in cardiovascular disease -- Lecture outline

A. Digitalis glycosides

1. General concepts of activity

2. Effect on normal heart

3. Effect on failing heart

4. Digitalis and membrane transport

5. Extracardiac effects

6. Chemistry and metabolism

B. Antiarrhythmic drugs

1. Quinidine

2. Procaine amide

Unit IX -- Drugs used in cardiovascular disease -- Goals

1. The student must be able to describe those conditions in which cardiac glycosides are particularly efficacious and to differentiate these from the conditions under which antiarrhythmic or antianginal drugs are recommended. He must be able to indicate contraindications in each kind of cardiac disease.

Lesson Content

Goals for Students

Week Fifteen

Unit IX (continued)

C. Coronary vasodilator and antianginal drugs

D. Anticoagulant drugs

E. Diuretic drugs

F. Approaches to atherosclerosis

Week Sixteen

Unit X -- Drugs affecting the gastrointestinal tract -- Lecture outline

A. Anticholinergics

B. Gastric antacids

C. Cathartics, laxatives and antidiarrheal agents

Unit X -- Drugs affecting the gastrointestinal tract -- Goals

1. Given specific problems associated with the gastrointestinal tract, the student must be able to recommend appropriate treatment and to explain his recommendation on the basis of gastrointestinal function.

Week Seventeen

Unit XI -- Drugs that influence endocrine functions -- Lecture outline

A. Insulin and oral antidiabetic drugs

B. Adrenal steroids

   1. General development

   2. Pituitary-adrenal relationships

   3. Glucocorticoids

   4. Mineralcorticoids

Unit XI -- Drugs that influence endocrine functions -- Goals

1. Given particular descriptions of endocrine malfunction or deficiency the student shall be able to list hormonal treatments associated with each such effect.

2. The student must be able to explain the action of gonadotropic hormones as contraceptives and to list the known contraindications and side effects.

Lesson Content

Goals for Students

Week Seventeen (continued)

Unit XI (continued)

- C. Thyroid hormones and antithyroid drugs
- D. Parathyroid extract, vitamin D and calcium metabolism
- E. Posterior pituitary hormones
    - 1. Vasopressin
    - 2. Oxytocin

Week Eighteen

- F. Gonadotropins and sex hormones
    - 1. Estrogens
    - 2. Progesterone
    - 3. Oral contraceptives
    - 4. Androgens
- G. Pharmacologic approaches to gout
- H. Antianemic drugs
- I. Vitamins

Week Nineteen

Unit XII -- Chemotherapy -- Lecture outline

- A. Historical development and general concepts of chemotherapy
- B. Sulfonamides
- C. Antibiotics
    - 1. Antibiotic synergism and antagonism
    - 2. Penicillin

Unit XII -- Chemotherapy -- Goals

1. The student must be able to explain the actions of antimicrobial agents in terms of selective antagonism and selective toxicity. He must be able to explain the evolution of drug resistant microbial cultures and relate specific cautions in usage of such agents to developing resistances. He shall also be required to be able to list toxic effects and signs of anaphylaxis associated with antimicrobial agents.

Lesson Content	Goals for Students

Week Twenty

Unit XII(C) (continued)

3. Streptomycin
4. Tetracyclines

Week Twenty-one

5. Chloramphenicol
6. Polypeptide antibiotics
7. Erythromycin and newer antibiotics
8. Antifungal antibiotics
9. Miscellaneous antibiotics and anti-viral agents
10. Drugs used in treatment of tuberculosis
    - a. streptomycin
    - b. para-aminosalicylic acid
    - c. isoniazid
    - d. other drugs

Week Twenty-two

D. Drugs used in treating leprosy

E. Antiseptics and disinfectants

F. Drugs used in treatment of amebiasis

G. Antihelminthic drugs

H. Antimalarial drugs

I. Chemotherapy of neoplastic diseases

1. Polyfunctional alkylating agents
2. Antimetabolites (structural analogues)
3. Steroid hormones
4. Miscellaneous anticancer drugs
    - a. vinblastine
    - b. vincristine
    - c. dactinomycin
    - d. procarbazine
    - e. quinacrine
    - f. L. asparagine

2. The student must be able to describe neoplastic processes in general and to relate therapy to specific characteristics of these diseases. He must be able to distinguish between remission induction therapy and maintenance therapy.

PA 208 I & II
CLINICAL APPLICATION AND

PA 207 I & II
MEDICAL INSTRUMENTATION

Course Description

Course Content: The two courses Clinical Application and Medical Instrumentation are integrated and given as one course. Students will be introduced by lecture, discussion, observation and practice to the common diseases and abnormalities of the various systems. Students will learn to take patient histories, to do routine physical examinations, and to use instruments involved in diagnosis and therapy. The students are given the opportunity to employ their assimilated knowledge through supervised experience in the hospital wards. Course material is correlated as much as possible with the systems under study.

Credits: Four quarter credits for each of two quarters.

Instructors: Katherine H. Anderson, B.S., M.D., director and coordinator of the course with the assistance of:

John R. Ausband, B.A., M.D.
Clinton D. Cater, Jr., B.S., M.D.
Robert M. Dacus, III, B.S., M.D.
Charles Dubay, Graduate of Duke P.A. Program
Leo J. Heaphy, Jr., A.B., M.D.
Carolyn C. Huntley, A.B., M.D.
Weston M. Kelsey, B.S., M.D.
Robert M. Kerr, B.S., M.D.
Robert C. McKone, B.S., M.D.
William T. McLean, Jr., B.S., M.D.
Emery C. Miller, Jr., B.A., M.D.
Richard B. Patterson, B.S., M.D.
Larry A. Pearce, B.S., M.D.
Robert E. Robinson III, B.S., M.D.
John L. Scott, B.A., M.D.
William J. Spencer, M.D.
Philip M. Toyama, B.A., B.S., M.D.
B. Lionel Truscott, B.A., M.A., M.S., Ph.D., M.D.
Garrett R. Tucker, A.B., M.D.
Edith M. Vail, B.S., M.S.
Richard G. Weaver, M.D.
Lesley L. Wilkes, B.S., M.D.
Richard L. Witcofski, B.S., M.S.

Class periods: Four 50-minute periods per week of lecture, discussion, and demonstration with one to four hours per week of assignments for observation and practice in the hospital wards and diagnostic facilities.

Methods of presentation: Lectures, discussion, films, slides, demonstrations and assigned reading. Students observe and participate in history taking, physical examination and use of diagnostic instruments. Skill in use of common diagnostic instruments is developed by practice on each other and on patients. The indications for and uses of the more involved instruments, such as X-ray, E.E.G., etc., are learned by observation, by demonstration, and by participation in their use.

Evaluation: Oral and written quizzes, observation of student performance and checking of students' written patient histories and physical findings.

Objectives

The student shall:

1. gain the ability to recognize and identify abnormal deviations from normal system functions;
2. acquire and demonstrate ability to use the common diagnostic instruments;
3. know the indications for use of special diagnostic instruments and tests;
4. be able to perform a routine history and physical examination;
5. be able clearly to describe, both in writing and verbally, all patient findings;
6. acquire general knowledge and understanding of major disease entities.

Textbooks

McCombs. Fundamentals of Internal Medicine. 4th ed. Year Book Medical Publishers, Inc., Chicago. 1971. (Required text.)

Morgan and Engel. The Clinical Approach to the Patient. W. B. Saunders Company, Philadelphia. 1969. (Required text.)

Textbooks (continued)

Silver, Kemp and Bruyn. Handbook of Pediatrics. 8th ed. Lange Medical Publications, Los Altos, California. 1969.

References

Brainerd, Krupp, Chatton and Margen. Current Diagnosis and Treatment. Lange Medical Publications, Los Altos, California. 1970.

De Gowin and De Gowin. Bedside Diagnostic Examination. 2d ed. The Macmillan Company, New York. 1969.

Harrison. Principles of Internal Medicine. 6th ed. McGraw-Hill Book Company, New York. 1970.

McBride. Signs and Symptoms. 5th ed. J. B. Lippincott Company, Philadelphia. 1970.

Audiovisuals

Kodachrome slides of skin diseases.
The Patient Is a Person. Coronet Films. (Film.)
Communicable Disease. Wayne State University. (Film.)
Embryology of Human Behavior. International Film Bureau. (Film.)
Testing Multiple Handicapped Children. United Cerebral Palsy Assn. (Film.)
The Neurological Examination. Parke-Davis Company. (Film.)
Diseases of the Ear, Nose and Throat. Veteran's Administration. (Film.)
Screening for Strabismus. International Film Bureau. (Film.)
Physical Diagnosis of Endocrine Disease. American Medical Association. (Film.)
Prenatal Care.
Modern Obstetrics, Normal Delivery. Ortho Pharmaceutical Corporation. (Film.)
Filmstrips of developmental sequences and abnormalities.
Transparencies of lecture outlines and disease classification.
Transparencies of skin structure and types of lesions.

Goals for Students

1. to develop observation, palpation, percussion, and auscultation skills;
2. to understand sterile techniques and to acquire the ability to handle all types of sterile equipment and supplies without contamination;
3. to be able to use routine equipment:
   a. stethoscope
   b. aneroid blood pressure cuff
   c. ophthalmoscope and otoscope
   d. reflex hammer
   e. tuning fork
   f. centimeter thermometer, ruler and tape measure
   g. pin and wisp of cotton
4. to understand the fundamentals of and to be able to take and record a complete patient history and complete physical examination of all body systems;
5. to acquire the ability to recognize and describe abnormal findings.

CLINICAL APPLICATION (PA 208 I & II)
and
MEDICAL INSTRUMENTATION (PA 207 I & II) (INTEGRATED)

Lesson Content

Clinical Application

Medical Instrumentation

Week One

Unit I -- Introduction and orientation -- Lecture outline

A. Organ system approach

1. The patient as a whole and principles of obtaining patient history
   - a. patient and his family
   - b. patient and society
   - c. patient and his environment
2. The body as a whole and principles of the physical examination
   - a. observation, inspection, palpation, percussion and auscultation
   - b. general appearance
   - c. behavior
   - d. measurements

A. Sterile techniques

1. Scrubbing
2. Sterile apparel
3. Gloves
4. Practice in handling sterile equipment and supplies in the dog surgery

B. Function and use of measurements

1. Temperature
2. Pulse
3. Sphygmomanometer and stethoscope
4. Weight
5. Height

Week Two

B. Practice in observation, inspection, and simple measurements on the wards

1. Written description of observation, inspections, and measurements of patients demonstrated.

C. Practice in use of techniques and instruments in "B" above on each other

Week Three

Unit II -- The integument -- Lecture outline

A. Examination of normal skin and appendages

1. Color, turgor, etc.

A. Use of skin suturing materials and equipment (observation and participation in dog surgery)

Week Three (continued)

Clinical Application

B. Abnormal findings (symptoms and signs)

1. Edema
2. Erythema
3. Wheal and flare
4. Desquamation
5. Pruritus
6. Macule
7. Papule
8. Vesicle
9. Bullac
10. Petechiae
11. Pustule
12. Pain and tenderness

Medical Instrumentation

Week Four

C. Common disease entities

1. Nevi - warts
2. Impetigo - pemphigus
3. Diaper dermatitis
4. Ringworm
5. Molluscum contagiosum
6. Seborrhea
7. Contact dermatitis
8. Eczema
9. Erythema multiforme
10. Urticaria
11. Acne
12. Other common skin infections

D. Laboratory and special diagnostic procedures - indications

E. Observe patients in dermatology clinic

B. Use of Wood's light

C. Use of instruments and materials for scraping and taking culture samples

D. Observation of sanding operation for acne

E. Radiological therapy

Week Five

Unit III -- Musculoskeletal system -- Lecture outline

A. Examination for normal and abnormal function

  1. General considerations of techniques for testing

    a. observation: deformity, movement, trauma

A. Splints and casts

  1. Application and removal

B. Observation and use of physiotherapy equipment

C. Percussion hammer

Week Five (continued)

Clinical Application

Unit III(A)(1) (continued)

b. palpation: reflexes, measurements, crepitus
c. muscle assessment: muscle tone, strength, atrophy, hypertrophy

Medical Instrumentation

Unit III (continued)

Week Six

B. Symptoms and signs

1. Muscle tone and strength
2. Weakness
3. Paralysis
4. Hypertrophy
5. Atrophy
6. Reflexes
7. Pain
8. Crepitus

C. Common disease entities

1. Myositis-dermatotrichinosis
2. Dystrophy-pseudohypertrophic
3. Myopathy-glycogen storage
4. Osteoporosis
5. Osteomalacosis
6. Osteomyelitis
7. Neoplasms
8. Arthritis
9. "Collagen" diseases
10. Fractures

D. Laboratory and special diagnostic procedures -- indications

E. Observation and practical exercises on the wards

D. Observation and use of E.M.G.

E. Observation of positioning for X-ray studies of fractures.

Week Seven

Clinical Application

Unit IV -- Neurology -- Lecture outline

A. Examination for normal and abnormal functions
  1. General
    a. speech
    b. gait
    c. affect
  2. The neurological examination
    a. normal and abnormal signs
    b. techniques - localization of lesions or defects by examination
    c. psychological tests their indication and interpretation

B. Symptoms and signs

Medical Instrumentation

A. Observation and use of
  1. Tuning fork
  2. Percussion hammer
  3. E.M.G.
  4. E.E.G.

B. Observation and interpretation of radiological studies
  1. Brain scan
  2. Pneumoencephalogram
  3. Myelogram
  4. Arteriogram
  5. Skull series

Week Eight

C. Major neurological disorders
  1. Headache
  2. Convulsive disorders - the epilepsies
  3. Infection
  4. Cerebrovascular disease - transient ischemia attacks and stroke
  5. Degenerative diseases - multiple sclerosis, etc.
  6. Tumors
  7. Trauma

C. Practice in the use of instruments on fellow students

Week Nine

Clinical Application

Unit IV (continued)

E. Observation and practice on the wards

Unit V(a) -- The special senses (eye) -- Lecture outline

A. Examination of the eye
  1. Indirect and oblique illumination
  2. Red reflex
  3. Turn lids

B. Symptoms and signs
  1. Photophobia
  2. Lacrimation
  3. Nystagmus
  4. Squints
  5. Lids
    a. edema
    b. chalazion
    c. sties
  6. Extraocular movements
    a. cover test
  7. Pupils
    a. size
    b. equality, light reaction, cornea

C. Common disease entities
  1. Conjunctivitis
    a. bacterial
    b. viral-herpes
  2. Cataract
  3. Congenital glaucoma
  4. Trauma
  5. Tumors
  6. Refractive errors
  7. Foreign body
    a. indirect and oblique illumination
    b. red reflex
    c. turn lids

D. Laboratory and special diagnostic procedures - indications

Medical Instrumentation

A. Practice in use of ophthalmoscope
  1. Dilating pupil
  2. Red reflex
  3. Normal disc and vessels

B. Visual screening, visual acuity and visual fields

C. Observe refractions

D. Tonometry

Week Nine (continued)

Clinical Application

Unit V(a) (continued)

E. Observation & practice exercises in eye clinic

Medical Instrumentation

Week Ten

Unit V(b) -- The special senses (ear, nose and throat) -- Lecture outline

A. Examination of ear, nose and throat

B. Symptoms and signs

  1. Impaired hearing
  2. Stridor
  3. Hoarseness
  4. Deformities, nasal, hairlip, etc.

C. Common disease entities

  1. Otitis media
  2. Sinusitis
  3. Tonsilitis
  4. Croup
  5. Neoplasm

D. Laboratory and special diagnostic procedures - indications

E. Observation and practice exercises in E.N.T. clinic

A. Practice in use of otoscope

B. Audiographic screening

C. Other, i.e., oral mirror, nasal speculum, etc.

Week Eleven

Unit VI -- Endocrinology -- Lecture outline

A. Hypothalamus -- pituitary

  1. Overactivity - brief discussion of
    a. acromegaly
    b. so-called Froelich's syndrome
      1) obesity & appetite
    c. specific trophic hormone
    d. tumors
  2. Laboratory and special diagnostic procedures - indications

A. X-ray bone age & abnormalities (sella)

Week Eleven (continued)

Unit VI (continued)

Clinical Application

B. Thyroid
  1. Overactivity
    a. symptoms
    b. signs
    c. lab tests
    d. etiology
  2. Underactivity
    a. symptoms
    b. signs
    c. lab tests
    d. etiology
  3. Goiter, with overactivity and underactivity
  4. Laboratory and special diagnostic procedures -- indications

C. Adrenal: Considered basically as three organs as listed by function
  1. Aldosterone
    a. overactivity
      1) signs
      2) etiology
    b. underactivity
      1) symptoms and signs
      2) etiology
  2. Cortisol
    a. overactivity
      1) symptoms and signs
    b. etiology
      1) iatrogenic
      2) tumor (very rare)
    c. underactivity
      1) symptoms and signs
      2) pheochromocytoma
      3) acrodynia
  3. Androgens: effect on sex and growth
    a. adrenal hyperplasia
    b. iatrogenic problems

Medical Instrumentation

Note: Time allowed for observation and use of special equipment during Unit VI is utilized for additional discussion time in Endocrinology.

Week Eleven (continued)

Clinical Application	Medical Instrumentation

Unit VI(C) (continued)

- 4. Laboratory and special diagnostic procedures - indications

D. Gonads

- 1. Ovaries
  - a. overactivity - effect on sexual growth and development
  - b. underactivity - as above, ex., gonadal dysgenesis eunuch
- 2. Testicles
  - a. overactivity and underactivity - ex., tumors, familial
- 3. Laboratory and special diagnostic procedures - indications

E. Endocrine organs not involved in cycling, i.e., not definitely pituitary controlled

- 1. Parathyroids - very brief discussion
- 2. Pancreas
  - a. endocrine - insulin - brief discussion of insulin metabolism
    - 1) overactivity - very rare
    - 2) underactivity - diabetes mellitus
  - b. exocrine - digestive enzymes - varying types of malabsorption
  - c. brief discussion of diabetes insipidus
- 3. Laboratory and special diagnostic procedures - indications

Week Twelve

Clinical Application

Unit VII -- Reproduction -- Lecture outline

A. Female

1. Examination (normal and abnormal)
2. Prenatal (normal & abnormal findings)
3. Delivery period
4. Postnatal
5. Observation & participation, Department of Obstetrics, outpatient, inpatient, & delivery

Medical Instrumentation

A. Vaginal speculum

B. X-ray - multiple pregnancy - pelvic bone abnormalities

C. Catheterization

Week Thirteen

6. Gynecology
   - a. infection (V.D.)
   - b. congenital abnormalities
   - c. neoplasm (pap stain)
   - d. Observation & participation, OPD and inpatient

7. Laboratory and special diagnostic procedures - indications

Week Fourteen

B. Male

1. Examination & findings
2. Common disease entities
   - a. infection (V.D.)
   - b. abnormalities
   - c. neoplasms

3. Observation & participation in OPD, V.D. clinic

4. Laboratory and special diagnostic procedures - indications

D. Catheterization

Week Fifteen

Clinical Application

Unit VII (continued)

C. Observation & participation in delivery suite
   1. Caesarean section

Medical Instrumentation

E. Forceps, surgical procedures & equipment

Week Sixteen

Unit VIII -- Cardiovascular system -- Lecture outline

A. Examination of heart, normal size, rate & rhythm, normal heart sounds

B. Symptoms & signs
   1. Dyspnea
   2. Cyanosis
   3. Edema
   4. Pallor
   5. Hypertension
   6. Shock
   7. Tachycardia
   8. Murmurs
   9. Cardiac enlargement
   10. Cardiac failure

C. Common disease entities
   1. Anemias
   2. Leukemias
   3. Purpuras-hemophilia
   4. Congenital heart diseases
   5. Rheumatic fever
   6. Paroxysmal tachycardia
   7. Subacute bacterial endocarditis
   8. Coronary heart disease
   9. Myocardial infarction
   10. Angina pectoris
   11. Hypertensive heart disease

D. Laboratory and special diagnostic procedures - indications

A. Stethoscope & syphygmomanometer

B. E.K.G.

C. Defibrillator

D. Phonocardiogram

E. Inhalation therapy equipment and use in acute heart conditions

F. X-ray

Week Seventeen

Clinical Application

Unit VIII (continued)

E. Observation & experience in OPD and wards

Week Eighteen

A. Examination

1. Normal respiratory patterns by age group
2. Normal breath sounds
3. Percussion & auscultation

B. Symptoms & signs

1. Chest pain
2. Cough
3. Sputum
4. Hemoptysis
5. Dyspnea
6. Hyperpnea
7. Stridor
8. Wheezing
9. Retraction
10. Cyanosis
11. Dullness
12. Resonance
13. Rales
14. Rhonchi
15. Friction rub

C. Common disease entities

1. URI - Rhinitis
2. Nasal obstruction
3. Croup
4. Tracheobronchitis
5. Pneumonia
6. Empyema
7. Tuberculosis
8. Obstructive lung
   a. disease
   b. foreign body
   c. asthma
   d. bronchiolitis
9. Congenital anomalies
   a. tracheoesophageal fistula
   b. diaphragmatic hernia
10. Neoplasms

Medical Instrumentation

A. Stethoscope

B. X-ray & fluoroscope

C. I.P.P.B.

D. Inhalation therapy equipment

E. Bronchoscope

Week Nineteen

Clinical Application

Unit IX (continued)

D. Laboratory and special diagnostic procedures - indications

E. Observation & practice - OPD and wards

Medical Instrumentation

Week Twenty

Unit X -- Gastrointestinal system (including liver, pancreas, and biliary tract) -- Lecture outline

A. Examination of abdomen

B. Symptoms and signs

1. Anorexia
2. Nausea
3. Vomiting
4. Constipation
5. Diarrhea
6. Hematemesis
7. Melena
8. Jaundice
9. Obesity
10. Pain

C. Common disease entities

1. Malrotation
2. Malabsorption
3. Ulcer
4. Acute int. obstruct.
   a. intussusception
   b. volvulus
5. Appendicitis & peritonitis
6. Megacolon
7. Fibrocytic disease of pancreas
8. Hepatitis
9. Liver abscess
10. Chronic liver disease
11. Acute and chronic cholecystitis
12. Cholelithiasis
13. Neoplasms

A. Intubation of stomach

B. Proctoscope

C. X-ray - upper G.I., lower G.I., flat plate, liver and biliary tract

D. Esophagoscope

E. Observe needle biopsy of the liver and study slides

Week Twenty (continued)

Clinical Application

Medical Instrumentation

Unit X (continued)

D. Laboratory and special diagnostic procedures - indications

E. Observation and practice - OPD and wards

Week Twenty-one

Unit XI -- Renal and urological systems -- Lecture outline

A. Examination

B. Symptoms and findings

1. Edema
2. Hypertension
3. Abdominal distress
4. Frequency
5. Tenderness in flanks
6. Temperature
7. Bladder distention
8. Abdominal mass in kidney area
9. Symptoms of obstruction of ureter or urethra
10. Dehydration
11. Fluid, electrolyte and acid-base balance

C. Common disease entities

1. Acute and chronic pyelonephritis
2. Glomerulonephritis
3. Nephritic syndrome
4. Uremia
5. Congenital anomalies
6. Trauma
7. Renal calculi and calcinosis
8. Prostatitis and urethritis
9. Neoplasms

D. Laboratory and special diagnostic procedures - indications

E. Observation and practice - OPD and wards

Week Twenty-two

Clinical Application	Medical Instrumentation

Unit XII - Nutrition

A. Examination

B. Symptoms and signs

1. Overweight and underweight
2. Edema
3. Tongue changes
4. Numbness and muscle weakness
5. Dermatitis and skin changes
6. Anemia
7. Hair changes
8. Gum changes
9. Conjunctivitis
10. Bony deformities
11. Ascites

C. Disease entities

1. Obesity
2. Deficiency diseases

D. Laboratory and special diagnostic procedures - indications

PA 209 I & II
INTERVIEWING AND COUNSELING TECHNIQUES

Course Description

Course Content - The student is made aware of the theory and techniques of effective communication with patients. By means of discussion, demonstration and participation the student develops interviewing and counseling skills.

Credits - Two quarter credits for each of two quarters.

Enrollment - Medical and physician's assistant students.

Instructors - Katherine H. Anderson, B.S., M.D.
George W. Bowman III, B.A., B.D., Th.M.
Patrick M. Cunningham, B.S., M.S.W.
Donald M. Hayes, B.S., M.D.
Lucile W. Hutaff, B.S., M.D.
Andrew D. Lester, B.A., B.D., Th.D.
David R. Mace, B.S., B.A., M.A., Ph.D.
Rachel Meschan, M.D.
William S. Pearson, B.S., M.D.

Class periods - Two hours weekly for two quarters.

Methods of Presentation - Panel discussions, group discussions, demonstrations, role playing and practice in actual patient interviewing. The students are divided into small groups for role playing and discussion of theory and techniques of interviewing and counseling. Patient interviews are conducted by the faculty member assigned to the group for demonstration and discussion. In the latter part of the course, students are assigned patients in the hospital for obtaining the patient's history. These are presented by the student to the group for discussion. Some interviews are video-taped and played back to the group for critical discussion. Some of the two-hour sessions are divided into a plenary session the first hour, with group sessions the second hour.

Evaluation - Mainly by observing student performance, evaluation of written reports (histories) and oral quiz.

Objectives - The student shall:

1. learn by doing how to make a patient (person) comfortable so that he feels free to talk;
2. learn by doing how to be comfortable and use one's self in the interview situation.

References

1. Selected readings assigned by the instructors.
2. Morgan and Engel. The Clinical Approach to the Patient. W. B. Saunders Company, Philadelphia. 1969.
3. Programmed Instruction in Medical Interviewing. University of Southern California School of Medicine, Department of Psychiatry.

Audiovisuals

Taped interviews and closed circuit televised interviews are used frequently for class discussion.

INTERVIEWING AND COUNSELING TECHNIQUES

Course Schedule

Week One

Orientation and tests

Week Two

Faculty panel - "The Physician-Patient Relationship;" discussion in groups.

Week Three

Demonstration of role-playing by second year students; discussion in groups and planning for role-playing.

Week Four

Panel of physicians - "Gaining the Patient's Cooperation;" role-playing in groups.

Week Five

Demonstration interview; role-playing in groups.

Week Six

Demonstration interview; role-playing in groups.

Week Seven

Panel of students - "Medical Education: Myth and Reality;" discussion in groups.

Week Eight

Demonstration interview; role-playing in groups.

Week Nine

Panel of nurses - "The Patient Adjusting to the Hospital" - Dr. Lucile Hutaff; role-playing in groups.

Week Ten

Demonstration interview; role-playing in groups.

Week Eleven

Demonstration interview; role-playing in groups.

Week Twelve

Faculty panel - "Basic Principles of Counseling;" discussion in groups.

Week Thirteen

Panel of chaplains - "The Patient's Need for Support;" role-playing in groups.

Week Fourteen

Demonstration interview; role-playing in groups.

Week Fifteen

Panel of physicians - "Relating to the Terminal Patient;" role-playing in groups.

Week Sixteen

Demonstration interview; patient interviewing in groups.

Week Seventeen

Student presentation of patient interviews; group discussion.

Week Eighteen

Student presentation of patient interviews; group discussion.

Week Nineteen

Student presentation of patient interviews; group discussion.

Week Twenty

Student presentation of patient interviews; group discussion.

Week Twenty-one

Student presentation of patient interviews; group discussion.

Week Twenty-two

Student presentation of patient interviews; group discussion.

PA 210
HUMAN DEVELOPMENT

Course Description

Course Content: The student is introduced to the basic features of growth and development. Growth and psycho-social development are presented from conception through senescence. The influence and role of the endocrine glands, heredity, environmental and nutritional factors are considered. Methods of measuring growth and behavior are demonstrated. Abnormal growth, its etiology and treatment, are presented.

Credits: Two quarter credits for each of two quarters.

Instructors:

Katherine H. Anderson, B.S., M.D.
Barbara Erwin, B.A., M.A.
Tamara K. Hahn, B.A., M.A.
Mary Anne Hayes, B.A., M.A.
Weston M. Kelsey, B.S., M.D.
Betty Ann Lore, R.N.
Daniel E. Keels, Jr., B.A., B.D., Th.M.
Edith M. Vail, B.S., M.S.

Class period: Two hours per week for two quarters. Additional hours are scheduled for ward demonstrations and practice.

Methods of presentation: Lecture, discussion, demonstration and practice, films, tapes, and video tapes.

Objectives: The student shall:

1. develop a basic knowledge of development from conception through senescence with the emphasis on the age group of most concern - the longitudinal approach (physical, sensory, perceptual, intellectual, emotional, social development);
2. develop the ability to observe children and adults within a developmental framework - recognizing and learning to respect individual differences;
3. develop the ability to see a child's pattern across areas at a given moment in time - the cross-sectional approach;

Objectives (continued)

4. develop the ability to interpret the implications of individual differences in the individual's life style and in his environment.

5. develop an understanding of how individuals learn.

Textbooks

No purchase required.

References

Haynes. A Developmental Approach to Case Finding. Department of Health, Education and Welfare Children's Bureau Publication No. 449. U. S. Government Printing Office, Washington, D. C. 1967.

Mussen, Conger and Kagan. Child Development and Personality. 3d ed. Harper and Row, New York. 1969.

Spock. Baby and Child Care. Pocket Books, Inc., New York. 1969.

Stone and Church. Childhood and Adolescence. 2d ed. Random House, New York. 1968.

Watson and Lowrey. Growth and Development of Children. 5th ed. Yearbook Medical Publishers, Chicago. 1967.

Audiovisuals

Gesell: Embryology of Human Behavior. International Film Bureau. (Film.)
The Phenomena of Early Development. Ross Laboratories. (Film.)
Terrible Twos and Trusting Threes. N. C. State Board of Health. (Film.)
Frustrating Fours and Fascinating Fives. N. C. State Board of Health. (Film.)
The Child from Six to Nine. N. C. State Board of Health. (Film.)
Ten to Twelve. N. C. State Board of Health. (Film.)
The Hyperkinetic Child. Pfizer Film Library. (Film.)
Discipline During Adolescence. N. C. State Board of Health. (Film.)
Parent to Child about Sex. N. C. State Board of Health. (Film.)

Evaluation

Oral and written quizzes, observation and reports.

PA 210
HUMAN DEVELOPMENT

Course Outline

Goals for Student

Week One

Unit I -- Normal growth -- Lecture outline

A. Introduction

1. Course goals and objectives
2. Course outline
3. Course assignments

B. Normal sequential growth and development (physical, social, and emotional)

1. Definition of growth and development
2. Prenatal
3. The infant
4. The toddler
5. The pre-schooler
6. The school-age child
7. Middle childhood
8. Later childhood
9. Adolescence
10. Rates of development

C. Discussion

Unit I -- Normal growth -- Goals

1. The student shall gain an appreciation of the variability, complexity and range of normal growth and development.
2. The student shall obtain an ability to anticipate the next steps in a developmental sequence.

Week Two

Unit II -- Normal speech and language development -- Lecture outline

A. Introduction

B. Definition of language

C. The process of language development

1. Birth
2. Six to seven weeks - babbling
3. Six to eight months - lolling
4. Nine to ten months - echolalia
5. Twelve to eighteen months - sound patterns
6. Eighteen to twenty-four months - jargon
7. Twenty-four to thirty-six months - longer phrases and sentences
8. Three to four years - longer sentences

Unit II -- Normal speech and language development -- Goals

1. The student is sensitized to critical signs indicating abnormal speech development.

Week Two (continued)

Course Outline

Goals for Students

Unit II(C) (continued)

9. Four to five years - completing basic language skills
10. Above six years

D. Measurements

1. Poole's chart
2. R-E-P language scale

E. Conclusions

Week Three

Unit III -- Atypical development and appropriate methods of stimulating growth and development -- Lecture outline

A. Physiologically based problems

1. Down's syndrome
2. Rubella syndrome
3. Floppy infant syndrome
4. Cerebral palsy
5. Hyperkincticism
6. Seizures
7. Mental retardation
8. Autism

B. Socio-cultural, emotional, and environmental based problems

1. Developmental retardation
2. Socio-cultural deprivation
3. Hospitalization of infants and young children
4. Abuse and neglect (positive Hinman sign)
5. Emotional problems in children
    a. basically healthy response with developmental crisis or situation crisis
    b. reactive disorders
    c. developmental deviation
    d. personality disorders
    e. psychotic disorders
    f. psychotic physiological disorders
    g. mental retardation

Unit III -- Atypical development and appropriate methods of stimulating growth and development -- Goals

1. The student shall acquire a sensitization to critical signs.

2. The student shall gain the ability to anticipate critical periods and potential problems, with orientation toward prevention.

Week Three (continued)

Course Outline

nit III(B) (continued)

6. Over-protective and indulgent parents
7. The middle-class family
8. Hyperactive vs. highly active

C. Stimulation

1. With personal contact
2. Toys and materials appropriate for given age levels

Goals for Students

Week Four

Unit IV -- Development of interpersonal relations -- Lecture outline

A. Prenatal interpersonal relationship with

   1. Biological interaction

      a. responsivity of growing organism
      b. responsivity of mother

   2. Elicits and focuses relevant attitudes and values

B. Stage of primary dependency (0-2 years)

   1. Symbiotic dependency to beginnings of self
   2. Widening experience with differentiation
   3. Selective perception of significant events and persons
   4. Recognition of personal power to influence

C. Satellization stage (2-6 years)

   1. Derived status as individual from parental valuation
   2. Cycle of explorative moving out - return to parent for support
   3. Increasing autonomy and limit testing
   4. Communication on one-to-one basis

Unit IV -- Development of interpersonal relations -- Goals

1. The student derives an understanding that the individual is an active participant in the process of his own development, influencing both quantity and quality of his interactions with people and his environment.

2. The student shall recognize that interpersonal relationships may be conceptualized in many ways, each theory providing understanding of particular aspects.

3. The student is to understand that development is a process and therefore undergoes change from one moment to another and that the rate of change varies widely while still remaining within normal limits.

Week Four (continued)

Course Outline | Goals for Students

Unit IV (continued)

D. Period of desatellization (6-12 years)

1. Exploratory orientation
2. Problem solving and skill mastery
3. Group-oriented communication, both expressively and receptively.
4. Same sex peer-group banding -- clubs, cliques, etc.

E. Period of Resatellization (adolescence)

1. Awareness of non-family values, attitudes, expectations
2. Complex dynamic interactive process of peer sub-group selection
3. In-group, out-group formations
4. Changing relationships with family members
5. Beginning of heterosexual interests

F. Period of independence

1. Own attitudes and values made more explicit
2. Adult role exploration
3. Relationships across broader range of ages, cultures and across sex lines
4. Selective group memberships
5. Reconciliation of independence with individual and authority relationships,, especially vocationally

G. Period of interdependence

1. Repertoire of relationships varying on many dimensions
2. Exercise of choice and of responsibility
3. Adult-appropriate relationship techniques and communication

H. Period of retirement

1. Revision of role relationships
2. Revision of perception of power and of dependency

Week Four (continued)

Course Outline

Unit IV (continued)

I. Paradigm for conceptualizing relationships

Goals for Students

Week Five

Unit V -- Neuromuscular development -- Lecture outline

A. Neuromuscular maturation

1. Embryology of human behavior
2. General aspects of neuromuscular maturation

    a. mechanism underlying neuromotor development (the sensory-motor system)
    b. characteristics of neuromotor development

        1) fetal development
        2) cephalo-caudal, proximo-distal direction of development
        3) cortical inhibition of primitive reflex activity
        4) overlapping of developmental stages
        5) universality of human motor patterns

    c. Implications for determining developmental status

3. Normal reflexes and reactions subserving neuromotor development (to be presented in chronologic order of their appearance with description of clinical manifestation, their significance in the acquisition of neuromotor abilities, and methods of assessing each)

    a. at birth:

        1) vital reflexes
        2) grasp reflexes
        3) placing reactions
        4) "stepping" reaction ("automatic" walking)
        5) neck righting reaction
        6) Moro reflex
        7) asymmetric tonic neck reflex

Unit V -- Neuromuscular development -- Goals

1. The student shall develop observational skills focused on analysis of developmental level of patient across areas of concern with sensitization to critical signs and symptoms.

2. The student shall become able to evaluate neuromuscular development.

Week Five (continued)

Course Outline — Goals for Students

Unit V(A)(3) (continued)

b. in first few months of life

1) labyrinthine righting reaction
2) symmetric tonic neck reflex
3) Landau reaction
4) body righting reactions
5) protective extension of arms ("parachute")
6) Galant's reflex (incurvation of trunk)
7) chewing reaction
8) equilibrium reactions
9) hopping reflex

B. Developmental phases in acquisition of fundamental motor patterns

1. Head control
2. Rolling
3. Sitting-including postural adaptations
4. Crawling and creeping
5. Standing-including postural adaptations
6. Walking and other forms of locomotion
7. Grasp and release
8. Developmental milestones (key ages)

C. Some aspects in management of the handicapped child

1. Practical suggestions for mothers concerning physical handling
2. Basic measures to prevent some sequellae (contractures, deformities) of disease and/or injury
3. Resources for professional help in management of the handicapped child

Week Six

D. Early signs of deviation in neuromotor development

1. At birth
2. After birth

E. Developmental evaluation of neuromotor status

1. Principles of testing - general considerations of technique of testing
2. Practical suggestions in outlining procedure during testing
3. Methods of recording and reporting results of testing.

Week Six (continued)

Course Outline

Goals for Students

Unit V (continued)

F. Some common neurologic and orthopedic conditions

1. Entities
   (To be discussed by pediatrician, including sensory assessment. Suggested entities: hydrocephalus, spina bifida, meningomyelocele, cerebral palsy, spinal cord injuries, peripheral nerve injuries, muscular dystrophies, scoliosis, arthritis, fractures, etc.)
2. Specialized methods of assessment to determine
   - a. muscle tone
   - b. muscle strength
   - c. atrophy/hypertrophy-including leg length
   - d. posture and spinal curvature
   - e. types of gait
3. Methods of recording and reporting results

Week Seven

Unit VI -- Growth and measurements -- Lecture outline

A. Normal physical and growth measurements

1. Individual growth pattersn
2. General body configuration
3. Constitutional (somatic) types
4. Photography
5. Head measurements
6. Chest measurements
7. Abdominal and pelvic measurements
8. Weight
9. Height
10. Height-weight curves
11. Growth and development of Negro infants
12. The Wetzel grid
13. Mnemonics
14. Growth as a whole
15. The Fels composite sheet
16. Posture
17. Growth and development of legs and feet

Unit VI -- Growth and measurements -- Goals

1. The student should gain the ability to utilize tests and measurements for estimates of developmental level.

Week Eight

Course Outline

Goals for Students

Unit VI (continued)

B. Organ development

1. The embryo
2. Development of enzyme systems
3. Musculature
4. Cutaneous structures
5. Skeleton
6. Facial growth
7. Central nervous system
8. Sensory development
9. Development of reflex behavior
10. Circulatory system
11. Circulation at different ages
12. Lymphatic system
13. Hemopoietic system
14. Development of immunity
15. Normal constituents of blood
16. Digestive system
17. Respiratory system
18. Urinary system and water balance
19. The genital organs
20. Increments of growth

C. Role of endocrine glands in normal growth and development

1. Effects of maternal and placental hormones on the fetus
2. The central nervous system and pituitary gland
3. The thyroid gland
4. The adrenal glands
5. Gonadal influences on growth and development
6. The parathyroid glands
7. Adolescence and puberty

Week Nine

Unit VII -- Nutrition -- Lecture outline

A. Nutrition in normal growth

1. Water and electrolyte requirements
2. Total caloric requirement
3. Protein
4. Carbohydrates
5. Lipids
6. Minerals and trace elements
7. Vitamins
8. Food habits
9. Dietary requirements

Unit VII -- Nutrition -- Goals

1. The student shall develop an understanding of the influence of nutrition on normal growth and development, and the effects of under- and over-nutrition.

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Week Ten

Course Outline

Unit VII (continued)

B. Malnutrition

1. Hypocaloric undernutrition
2. Severe protein-calorie malnutrition
3. Deficiency states

   a. iron deficiency
   b. rickets
   c. scurvy
   d. beriberi
   e. pellagra

C. Obesity

1. Simple obesity

   a. dietary
   b. environmental
   c. psychogenic
   d. physical inactivity
   e. genetic

2. Cushing's syndrome
3. Hypothalamic lesions
4. Glycogen storage diseases

Goals for Students

Week Eleven

Unit VIII -- Abnormal development -- Lecture outline

A. Dwarfism

1. Bone diseases
2. Generalized diseases
3. Organic disorders
4. Hereditary and primordial dwarfism
5. Other types of dwarfism

B. Gigantism

1. Hereditary gigantism
2. Pituitary and hypothalamic gigantism
3. Marfan's syndrome
4. Eunuchoid gigantism
5. Obesity

Unit VIII -- Abnormal development -- Goals

1. The student is to understand and to be able to differentiate between concepts of developmental lag and critical developmental delays.

Week Twelve

Course Outline

nit IX -- Behavior and personality development

A. Development of self-concept

1. Difference in way adult and infant perceive world
2. Development of awareness of connections and framework
3. Perceptual development
4. Cultural heritage

   a. socialization
   b. development of conscience
   c. continuity versus discontinuity

B. Development of healthy personality

1. General principles of development
2. Components of a healthy personality

   a. trust
   b. autonomy
   c. initiative
   d. accomplishment
   e. identity
   f. intimacy
   g. parental sense
   h. integrity

3. AV tape on principles of development

Week Thirteen

C. Infancy and toddlers

1. Growth and development
2. Discussion of movie: "The Phenomena of Early Development"
3. Observation assignment

Goals for Students

1. To develop an understanding of the familial and environmental factors and their possible influence and impact upon development.

2. To be able to recognize critical signs of conflict.

3. To be familiar with agencies and facilities for referral.

Week Fourteen

Course Outline | Goals for Students

D. Two, three, four and five-year-olds

1. Characteristics of age
2. Discussion of movies: "Terrible Twos and Trusting Threes","Frustrating Fours and Fascinating Fives"
3. Special assignment to be done before class in the Day Care Center. Listen to conversation of children of 2,3,4 and 5 years of age (between child and adult and between child and child). Write down, as nearly as possible, exactly what was said and then give interpretation.

Week Fifteen

E. Six, seven, eight, and nine-year-olds

1. Characteristics of age
2. Discussion of movie: "From Six to Nine"

F. Ten, eleven, and twelve-year-olds

1. Characteristics of age
2. Discussion of movie: "Ten to Twelve"

Week Sixteen

G. Adolescence

1. Physical change and social development
   - a. relation between physical development and personality
   - b. adjustment demands of adolescence
   - c. dependence and independence
   - d. sexual behavior in the adolescent
   - e. cultural influences on sexual attitudes and behavior
   - f. the adolescent and his peers
   - g. vocational choice
   - h. summary

Week Sixteen (continued)

Course Outline **Goals for Students**

G. Adolescence

  2. Ego identity, values and alienation

    a. ego identity
    b. values
    c. alienation
    d. the culturally deprived
    e. school dropouts
    f. juvenile delinquency
    g. emotional maturity
    h. summary

Week Seventeen

  3. Sexual behavior and sex education

    a. heterosexual relationships

Week Eighteen

H. The young adult

  1. Emotional maturity
  2. Parenthood

Week Nineteen

I. The middle years

  1. "Empty-nest" syndrome
  2. Role of middle-aged female in our culture
  3. Job dissolution
  4. Preparing for retirement

Week Twenty

J. Retirement years and senescence

  1. Problems of aging
  2. Contracting world
  3. Intergenerational relationships

Week Twenty-one

Course Outline	Goals for Students
Unit X -- Discipline -- Lecture Outline	Unit X -- Discipline -- Goals
A. Dependence and independence	1. The student shall explore the use of discipline at various stages of growth and development.
B. Adjustment demands at various stages of development	
C. The individual and his attitude to peer discipline	
D. Forms of discipline and stage of development	

Week Twenty-two

Unit XI -- Family conflict -- Lecture outline	Unit XI -- Family conflict -- Goals
A. Value systems	1. The student shall be able to recognize critical signs of conflict.
B. Individual conflict	
C. Within family	2. The student shall become familiar with sources for referral.
D. Within culture	
E. Interaction at each of these levels	
F. Creative resolution of differences	

A 111

FIRST AID AND EMERGENCIES

Course Description

Course content:	How to prevent accidents as well as what to do when an accident occurs is covered in this course. Emphasis is placed on preventive measures. Prompt treatment utilizing the proper techniques is also covered in detail so that the student equips himself to make living safer for other individuals. This is a combination of the standard and advanced courses as taught by the American Red Cross.
Credits:	One quarter credit for one quarter.
Instructor:	James L. Parham.
Class period:	One 90-minute lecture period per week for one quarter.
Methods of presentation:	Lectures, films, and demonstrations.
Evaluation:	Practical examinations, attendance and a final examination (60%).

Objectives

The student shall be able to prevent, and, when they occur, to recognize emergencies. He must also be able to assess the immediate care needed by the patient and to administer temporary first aid until qualified professional medical attendance is assured.

Textbook

American National Red Cross. First Aid. 4th ed. Doubleday and Co., Inc. Garden City, New York. 1969. (Required text.)

References

None.

Audiovisuals

UNIT I

Hands in Action. North Carolina State Board of Health. (Film.)

A 111

FIRST AID AND EMERGENCIES

Week One

Lesson Content

Unit I -- Introduction and wounds -- Lecture outline

A. Introduction

1. Definition of first aid
2. Value of first aid
    a. immediate attention
    b. disaster care
    c. safety consciousness
3. General directions
    a. urgency of need for aid
    b. protection of patient
    c. evaluation of injury
    d. planning of first aid
    e. execution of plan

B. Wounds

1. Definition of types of wounds
2. Prevention
3. Infection
4. First aid to wounds
    a. wounds without severe bleeding
    b. wounds with severe bleeding
    c. wounds with internal bleeding
    d. wounds without bleeding and special wounds

Goals for Students

Unit I -- Introduction and wounds -- Goals

1. The student shall be able to discuss general objectives and purposes of first aid.
2. The student shall be able to list, without references, types of wounds, methods of protection of wounds from contamination, and methods of control of bleeding.

Lesson Content	Goals for Students
Week Two	
Unit II -- Shock -- Lecture outline	Unit II -- Shock -- Goals
A. Causes and dangers of shock B. Signs and symptoms of shock C. First aid for shock 1. Position of patient a. without chest injury b. with chest injury 2. Temperature 3. Fluids	1. The student shall be able to discuss prevention and/or treatment of shock.
Week Three	
Unit III -- Artificial respiration -- Lecture outline	Unit III -- Artificial respiration -- Goals
A. Physiology of breathing B. Situations requiring 1. Electrocution 2. Poisoning 3. Drowning C. Mechanisms of artificial respiration 1. Lung expansion 2. Maintenance of airway through mouth and nose	1. Without aids, the student shall be able to explain the necessity for artificial respiration, its function and the results it should produce.

Lesson Content	Goals for Students
Week Four	
Unit IV -- Poisoning by mouth -- Lecture outline	Unit IV -- Poisoning by mouth -- Goals
A. Causes and prevention B. Signs and symptoms C. First aid 1. Common poisonings 2. Exceptions	1. The student shall be able to list the most common types of accidental poisonings. He shall be aware of the importance of rapid dilution of the toxic agent and of the situations in which vomiting should not be induced.
Week Five	
Unit V -- Injuries to bones, joints and muscles -- Lecture outline	Unit V -- Injuries to bones, joints and muscles -- Goals
A. Fractures 1. Causes and prevention 2. Signs and symptoms a. first aid (1) prevention of motion (2) procudres for specific fractures 3. Head injury 4. Sprains and strains 5. Dislocations	1. The student shall be able to appreciate the importance of immediate immobilization of suspected bone/muscle injuries and of the joints adjacent to or involved in such injuries. 2. The student shall be able, without aid of textbooks or notes, to list in order of preference first aid treatments of choice for traumatic injuries which given a list of such injuries.
Week Six	
Unit VI -- Heat and cold -- Lecture outline	Unit VI -- Heat and cold -- Goals
A. Burns 1. Thermal burns	1. The student shall be able to discuss or explain the methods of relieving pain, prevention of contamination

Lesson Content

Goals for Students

Week Six (continued)

Unit VI(A) (continued)

2. Sunburn
3. Chemical burns

B. Effects of prolonged exposure to overheated environment

1. Heat exhaustion
2. Heat stroke
3. Heat cramps

C. Effects of prolonged exposure to undue cold

1. Frostbite
2. Unconsciousness

and treatment for shock resulting from thermal injuries.

Week Seven

Unit VII -- Common emergencies -- Lecture outline

A. Heart attack

B. Stroke

C. Fainting

D. Convulsions

E. Unconsciousness

F. Foreign bodies

1. In the eye
2. In the air passages
3. In the food passages

Unit VII -- Common emergencies -- Goals

1. The student shall be able to discuss the rationale and methods of treatment for relatively common medical emergencies, e.g., heart attack, fainting, seizures, etc.

Lesson Content

Goals for Students

Week Eight

Unit VIII -- First aid skills -- Lecture outline

- A. Transportation of the injured individual
  - 1. Methods of transfer
    - a. short distance transfer
    - b. vehicular transfer
- B. Bandaging
  - 1. Anchoring
  - 2. Circular turns
  - 3. Spiral turns
  - 4. Figure-of-eight turns
  - 5. Recurrent turns
- C. Control of bleeding
  - 1. Gauze compress
  - 2. Adhesive compress
  - 3. Direct pressure
  - 4. Tourniquet
- D. Artificial respiration
  - 1. Manual technique
  - 2. Mouth-to-mouth
- E. Stretcher techniques
  - 1. Three-man hammock carry
  - 2. Five-man blanket lift

Unit VIII -- First aid skills -- Goals

1. The student is to be able to explain verbally the inadvisability of movement of an injured individual, as well as the proper methods of movement of the individual when such movement is absolutely necessary.

2. The student is to master practical techniques of on-the-scene injury treatment and care of the victim until professional medical care can be secured.

Lesson Content

Week Nine

Unit IX -- Advanced first aid theory -- Lecture outline

- A. Special wounds
  - 1. Deep wounds
  - 2. Gunshot wounds
  - 3. Animal bites and stings
- B. Appendicitis
- C. Blisters, boils and sties
- D. Plant poisonings
- E. Special skeletal injuries
  - 1. Fractures of axial bones
  - 2. Fractures of appendicular bones

Goals for Students

Unit IX -- Advanced first aid theory -- Goals

1. The student shall be able to discuss the management of less common emergencies, e.g., gunshot wounds, animal bites, vertebral fractures, etc.

Week Ten

Unit X -- Advanced first aid skills -- Lecture outline

- A. Triangular bandaging
  - 1. Hand or foot
  - 2. Head and face
  - 3. Chest or back
  - 4. Shoulder or hip
- B. Cravat bandaging
  - 1. Head or ear
  - 2. Eye

Unit X -- Advanced first aid skills -- Goals

1. The student shall be able to apply bandages and splints required in special emergency situations.

Lesson Content | **Goals for Students**

Week Ten (continued)

Unit X(B) (continued)

3. Neck
4. Extremity
5. Elbow or knee
6. Hand and wrist
7. Sprained ankle

C. Splinting
    1. Fingers
    2. Arm and wrist
    3. Knee cap
    4. Fixation splint
    5. Traction splint
    6. Spinal fixation

Week Eleven

Unit XI -- First aid supplies
Lecture outline

A. Unit-type kits
B. Specialized kits

Unit XI -- First aid supplies --
Goals

1. The student is to be able to list from memory the contents of the well-equipped general first aid kit and the supplies to be added to kits to be placed where special dangers exist.

PA 219
MEDICAL RECORDS AND COMPUTERS IN MEDICINE

Course Description

Course content - The student learns the proper use of the medical record, the functions of the record, the legal status and the function of the medical record librarian. The use of computers in medicine is discussed and demonstrated.

Credits - Required but no credits awarded.

Instructors Martha S. Avant, A.A., R.R.L.
Robert E. Robinson III, B.S., M.D.
Barbara G. Volk, B.A., R.R.L.

Class period - Four one-hour lecture discussion periods and two two-hour demonstration periods, one in the hospital medical record department and the other in the Data Processing Center.

Methods of presentation - Lecture, discussion and demonstration.

Evaluation - Individual oral interview.

Objectives - The student shall:

learn to use medical records properly;

observe and have some understanding of the use of computers in medicine.

PA 219
MEDICAL RECORDS AND COMPUTERS IN MEDICINE

Course Outline

Week One

Unit I - Introduction to medical records -- Lecture outline

A. Definition of medical record and criteria for adequacy

B. Basic sections of the medical record

1. Identification
2. Medical section
3. Nurses's section

C. Special records

1. Obstetrical
2. Newborn

Unit II - The quantitative analysis of medical records

A. All medical records (clinic and inpatient) must contain (discuss entries, signatures and corrections)

1. Identification and consent forms
2. History of patient
3. Report of physical examination
4. Diagnostic and therapeutic orders
5. Observations
6. Reports of actions and findings
7. Conclusions

B. Obstetrical record

1. Prenatal
2. History and physical examination
3. Labor and delivery
4. Postpartum

C. Newborn record

1. Physical examination (admission & discussion)
2. Maternal history
3. Nurse's notes
4. Apgar rating
5. Circumcision permit
6. Birth certificate

Week Two

Unit III - Uses, purposes and value of the medical record

A. To serve the goal of the hospital - better patient care

B. Value of the medical record to

1. Patient
2. Physician
3. Hospital (research and education)
4. Public health

C. Other uses

1. Hospital statistics
2. Vital records
3. Insurance
4. Accrediting agencies
5. Legal aspects

Unit IV - Development and flow of medical record through the hospital

A. Pre-admission

B. Admission

C. Hospital course

D. Discharge

E. Follow-up

Unit V - Survey of the Joint Commission on Accreditation of Hospitals

Week Three

Unit VI - Identifying and preserving patient records

A. Filing (material and equipment)

1. Location: centralized or decentralized
2. Method: numerical or digit

B. Numbering

1. Unit
2. Serial
3. Serial unit

C. Control

1. Requisition
2. Charge-out

Week Three (continued)

Unit VI (continued)

D. Mention of microfilm

E. Legal requirements for preservation

Unit VII - Summary of the services medical record librarians can offer physician and allied health professional -- Lecture outline

A. Patient index

B. Disease index

C. Operation index

D. Physician's index

E. Weekly, monthly, annual reports

F. Other studies:

1. AMA drug reaction study
2. Tumor registry
3. Perinatal morbidity
4. Special studies requested by physician

G. Assistance with birth and death certificates

H. Committee work - utilization, tissue and medical record committees

I. In-service education

J. Consultation with other departments on setting up filing systems

Week Four

Unit VIII - Legal aspects of medical records -- Lecture outline

A. History of medical jurisprudence

B. Types of cases

1. Criminal
2. Civil

   a. breach of contract
   b. tort

Unit VIII (continued)

C. Interests in record

   1. Record ownership
   2. Patient's right to control record

      a. right of privacy
      b. confidential communications
      c. privileged communications

D. Uses for record in court

E. Admission of record as evidence

   1. Subpoena duces tecum
   2. Rules of evidence

      a. primary evidence
      b. hearsay evidence
      c. medical records as evidence

Unit IX - Release of information -- Lecture outline

A. General considerations

   1. Ownership of record
   2. Patient's right of control
   3. Essentials of a complete authorization

      a. signature
      b. date
      c. party requesting
      d. party releasing
      e. information desired

B. Release to hospitals and physicians

C. Release to attorneys

D. Release to patient and family

E. Release to insurance companies

F. Release to other agencies

Week Five

Unit X - Final hour of the lecture series -- Lecture outline

A. Tour with Mrs. Martha Avant of the Medical Record Department of North Carolina Baptist Hospital

B. Demonstration of various units that make up the medical record department

C. Services the N.C.B.H. Medical Record Department offers to physicians and other allied health personnel and administration.

Week Six

Unit XI - Computer uses in medicine (in the computer facility) -- Lecture outline

A. Programming

B. Programs now in use

C. Future of computers in medicine

D. Tour and demonstration of facilities

ED 059380

THE SYSTEMS APPROACH TO FUNCTIONAL JOB ANALYSIS

Task Analysis of the Physician's Assistant

VOLUME III

Phases II and III -- Clinical Clerkships and Assignments

Lee Powers
Program Director
Physician's Assistant Training
The Bowman Gray School of Medicine
Wake Forest University
Winston-Salem, North Carolina 27103

CONSULTANTS:

Michael D. Batten, Senior Staff Member
The W. E. Upjohn Institute
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This report is made possible by Contract N.I.H. 70-4090.

VT014672

PA 212
CLINICAL MEDICINE

Course Description

Course content: This course is designed to assist the student in understanding the disease process, symptoms, signs, physical and laboratory findings of the common disease entities encountered by practitioners. Very little time will be spent on infrequently occurring and rare diseases.

Credits: Four credit hours per quarter for two quarters.

Instructors: Katherine H. Anderson, B.S., M.D., director and coordinator of the course, with the assistance of

John R. Ausband, B.A., M.D.
Clinton D. Cater, Jr., B.S., M.D.
Robert M. Dacus III, B.S., M.D.
Charles Dubay, Graduate of Duke Physician's Assistant Program
Leo J. Heaphy, Jr., B.A., M.D.
Carolyn C. Huntley, B.A., M.D.
Weston M. Kelsey, B.S., M.D.
Robert M. Kerr, B.S., M.D.
Robert C. McKone, B.S., M.D.
William T. McLean, Jr., B.S., M.D.
Emery C. Miller, Jr., B.A., M.D.
Richard B. Patterson, B.S., M.D.
Larry A. Pearce, B.S., M.D.
Robert E. Robinson III, B.S., M.D.
John L. Scott, B.A., M.D.
William J. Spencer, M.D.
Philip M. Toyama, B.A., B.S., M.D.
B. Lionel Truscott, B.A., M.A., M.S., Ph.D., M.D.
Garrett R. Tucker, B.A., M.D.
Edith M. Vail, B.S., M.S.
Richard G. Weaver, M.D.
Lesley L. Wilkes, B.S., M.D.
Richard L. Witcofski, B.S., M.S.

Class period: A minimum of four hours weekly during Phase II training period.

Methods of presentation: Discussion, case demonstration, case conferences, clinical pathological conferences, teaching ward rounds, and case assignments.

Evaluation: Oral quizzes, observation, and case workups.

Objectives

The student shall:

1. develop a working knowledge of common disease entities;
2. be able to recognize characteristic symptoms and signs of the disease entity;
3. be able to interpret laboratory findings and special diagnostic procedures;
4. be able to record accurately and completely the patient's physical assessment and evaluation.

Textbooks

Beeson and McDermott, ed. Cecil-Loeb Textbook of Medicine. 13th ed. W. B. Saunders Company, Philadelphia. 1971. (Required text.)

De Gowin and De Gowin. Bedside Diagnostic Examination. 2d ed. The Macmillan Company, New York. 1969. (Required text.)

Morgan and Engel. The Clinical Approach to the Patient. W. B. Saunders Company, Philadelphia. 1969. (Required text.)

References

Harrison et al., ed. Principles of Internal Medicine. 6th ed. McGraw-Hill Book Company, New York. 1970.

Current journals.

PA 212
CLINICAL MEDICINE

Course Outline

Week One

Unit I -- Infectious diseases

A. Viral diseases

B. Rickettsial disorders

C. Bacterial diseases

Week Two

D. Mycotic diseases

E. Spirochetal diseases

F. Diseases caused by metazoa

G. Immune mechanism in disease

Week Three

Unit II - Disease of the skin and connective tissues

A. Collagen diseases

B. Cutaneous diseases

C. Granulomatous diseases

D. Venom diseases

E. Diseases due to chemical agents

Week Four

Unit III - Diseases of cardiovascular system

A. Pathologic physiology of heart failure

B. Circulatory collapse and shock

C. Treatment of congestive heart failure

D. Congenital heart disease

F. Chronic valvular heart disease

Week Five

Unit III - Continued

F. Coronary heart disease

G. Hypertension

H. Cardiac arrhythmias

I. Diseases of pericardium, myocardium and endocardium

J. Diseases of aorta

K. Diseases of peripheral vessels

L. Normal laboratory values of clinical importance

Week Six

Unit IV - Diseases of the bronchopulmonary system

A. Morphologic and physiologic basis of bronchopulmonary diseases

B. Acute diseases of the bronchi

C. Generalized obstructive and nonobstructive lung disease

D. Bronchiectasis

E. Pneumoconiosis

Week Seven

F. Circulatory disorders in bronchopulmonary disease

G. Neoplasms

H. Diseases of the pleura

I. Diseases of the mediastinum

J. Diseases of the diaphragm

K. Normal laboratory values of clinical importance

Week Eight

Unit V - Diseases of the kidneys

A. Renal physiology fluid, electrolyte, and acid-base balance

B. Chronic and cute renal insufficiency

C. Dialysis and ultrafiltration therapy

D. Glomerulonephritis

E. Nephrotic syndrome

Week Nine

F. The toxemias of pregnancy

G. Pyelonephritis

H. Arteriolar nephrosclerosis

I. Obstructive nephropathy

J. Toxic nephropathy

K. Cysts and tumors of the kidney

L. Other diseases and disorders of the kidney

M. Normal laboratory values and clinical importance

Week Ten

Unit VI - Diseases of digestive system

A. Disorders of mobility

B. Acid - peptic disease

C. Diseases of malabsorption

D. Diseases of the pancreas

Week Eleven

Unit VI - Continued

E. Inflammatory diseases of intestines

F. Diseases of peritoneum

G. Tumors and neoplastic disease

H. Normal laboratory values and clinical importance

Unit VII - Diseases of the liver and biliary tract

A. Diseases of the liver

B. Diseases of gallbladder and bile duct

C. Normal laboratory values and clinical importance

Week Twelve

Unit VIII - Diseases of nutrition and metabolism

A. Nutrient deficiency and deficiency diseases

B. Disorders of carbohydrate metabolism

C. Disorders of protein metabolism

D. Disorders of lipid metabolism

E. Normal laboratory value and clinical importance

Week Thirteen

Unit IX - Diseases of the endocrine system

A. Anterior pituitary

B. Pineal

C. Posterior pituitary

D. Thyroid and parathyroid

E. Adrenal cortex

Week Fourteen

F. Gonads

G. Ovaries

H. Sympatho-adrenal system

I. Neoplasm

J. Normal laboratory values and clinical importance

Week Fifteen

Unit X - Diseases of blood and blood-forming organs

A. The anemias

B. Polycythemia

C. Diseases of the white cells and platelets

D. Conditions primarily affecting lymph nodes

Week Sixteen

E. The histiocytoses

F. Plasma cell dyscrasia

G. Diseases of the spleen

H. Hemorrhagic disorders
I. Normal laboratory values and clinical importance

Week Seventeen

Unit XI - Diseases of the nervous system

A. Prominent neurologic symptoms and their management

B. Diagnostic techniques in neurology

C. The epileptic

D. Genetic, developmental and degenerative diseases of the nervous system

E. Extrapyramidal disorders

F. Cerebrovascular diseases

Week Eighteen

G. Infectious and inflammatory diseases of central nervous system and its coverings

H. The demyelinating diseases

I. Nutritional disorders of central nervous system

J. Intracranial tumors and states causing increased intracranial pressure

K. Injuries of head and spine

Week Nineteen

L. Diseases of spinal cord, roots and nerves

M. Neuromuscular disorders

N. Disorders of nervous system integration and adaptation

O. The acute psychoses

P. Drug dependence, addiction and intoxication

Week Twenty

Unit XIII - Diseases of bone

A. Bone physiology and calcium homeostasis

B. The osteoporoses

C. The osteomalacias

Week Twenty

Unit XIII - Diseases of bone - Continued

D. Osteitis fibrosa

E. Osteomyelitis

F. Congenital and hereditary disorders

G. Tumors and other diseases of bone

H. Normal laboratory values and clinical importance

Week Twenty-one

Unit XIV - Diseases of joints

A. Arthritis - specific infections, atrophic and degenerative

B. Neuropathic joint disease

C. Mechanical derangement of joints

D. Tumors

E. Other joint disorders

Week Twenty-two

Unit XV - Diseases due to chemical agents

A. Common accidental poisoning

B. Heavy metal poisoning

C. Carbon monoxide poisoning

D. Methemoglobinemia and sulfhemoglobinemia

E. Food poisoning

Unit XVI - Environmental and physical factors in disease

A. Adaptation to physical stress

B. Heat and cold

C. Alterations in atmospheric pressure

D. Motion sickness

E. Electric shock

F. Radiation injury

GENERAL MEDICINE CLERKSHIP

I. Teaching Faculty

A. Robert M. Kerr, M.D., Associate Professor of Medicine and Coordinator of Physician's Assistant assignments, Dept. of Medicine
B. William J. Spencer, M.D., Assistant Professor of Medicine, Resident Staff
C. Lester E. Watts, M.D., Associate Professor of Medicine
D. John H. Edmonds, M.D., Associate Professor of Medicine
E. Henry S. Miller, Jr., M.D., Associate Professor of Medicine
F. C. Glenn Sawyer, M.D., Professor of Medicine
G. Robert N. Headley, M.D., Associate Professor of Medicine
H. James D. Yopp, M.D., Assistant in Medicine

II. Objectives

A. To develop and improve skills in patient support
B. To develop and improve skills in history and physical examinations
C. To provide experience in a wide variety of patient problems
D. To develop skills in organizing and correlating laboratory data as related to patient's illness and place of evaluation and treatments

III. Content

During this eight-week rotation, the physician's assistant student will attend all teaching rounds and conferences appropriate for the specialty with which he is associated. These would include staff conferences, specialty conferences, postmortem conferences, and selected student teaching conferences. Selected new patients will be assigned for histories and physical examinations under supervision of assigned resident and intern. He will be expected to follow the progress of their patients, to keep abreast of changes in physical status as well as laboratory findings, and to read appropriate sections in standard textbooks of medicine on the clinical problem at hand. He will be expected to observe and, if necessary, assist in various procedures carried out on the service to which he is assigned. The physician's assistant specializing in internal medicine will continue on this clerkship for 3 months.

IV. Procedures

A. Proficiency required

1. Venipuncture
2. Starting IV's
3. Nasogastric intubation
4. Gastric analysis
5. Administration of IV medications
6. Standard E.C.G.
7. Preparation for:
    a. Liver biopsy
    b. Bone marrow
    c. Lumbar puncture
    d. Endoscopy, sigmoidoscopy

B. Understanding of -
   1. Cardiac catheterization
   2. Cardioversion
   3. Phonocardiography
   4. Endoscopic procedures
   5. Gastric and small bowel biopsy
   6. Pulmonary function
   7. Pacemaker placement
   8. Exercise cardiogram

V. Evaluation

Student skills and knowledge will be evaluated through observation, case reports, discussions and oral quizzes and a final written examination.

VI. Reading

Functional Gastrointestinal Disease. Palmer, Edley D.. Thomas and Co. 1966
Cecil and Loeb Text Book of Medicine. Beeson and McDermott. W. B. Saunders. April 1967.
The Clinical Approach to the Patient. Martin and Engel. W. B. Saunders Co., Philadelphia. 1969.

MEDICAL CLERKSHIP

Typical Week

Monday	A.M.	8:00 - 10:00 - Rounds
		10:00 - 12:00 - New clinic patients
	P.M.	12:00 - 1:00 - Clinical Pathological Conference
		3:30 - 5:00 - Cardiology Problems conference
Tuesday	A.M.	8:00 - 10:00 - Rounds
		10:00 - 12:00 - Case assignments
	P.M.	12:30 - 1:30 - G.I. Surgery Conference
		1:30 - 5:00 - Assigned cases
Wednesday	A.M.	8:00 - 9:00 - Medicine - Ped. Jr. Club
		9:00 - 10:00 - Endocrine - Renal Conference
		10:00 - 12:00 - Medicine Staff conference
	P.M.	12:30 - 2:00 - Cardiology conference or oncology conference
		2:00 - 4:00 - Case assignments
		4:00 - 5:00 - Work rounds
Thursday	A.M.	8:00 - 10:00 - Rounds
		10:00 - 11:00 - Case assignments
		11:00 - 12:00 - E.C.G. conference
	P.M.	1:00 - 3:00 - Case assignments
		3:00 - 4:00 - Infection Diseases Conference
		4:00 - 5:00 - Work rounds
Friday	A.M.	8:00 - 11:00 - Rounds
		11:00 - 12:00 - Medicine and X-Ray conference
	P.M.	12:30 - 1:30 - Autopsy conference
		2:00 - 4:00 - Case assignments
		4:00 - 5:00 - Work rounds

GENERAL PEDIATRIC CLERKSHIP

I. Teaching Staff

A. Faculty

1. W. M. Kelsey, M.D.
2. Katherine Anderson, M.D.
3. Alanson Hinman, M.D.
4. Carolyn Huntley, M.D.
5. Archie Johnson, M.D.
6. Ruth O'Neal, M.D.
7. Doris Sanders, M.D.
8. Barbara Erwin, M.A.
9. Tamara Hahn, M.A.
10. Mary Ann Hayes, M.A.
11. James Finger, M.D.
12. Public Health Nurses

B. House Staff

1. Chief Resident
2. Pediatric Residents
3. Pediatric Interns

II. Objectives

A. To provide an overview of general pediatrics through experience in the newborn nursery and outpatient clinics.

B. To develop capability in pediatric history taking and physical examination and accurate recording of these.

C. To acquaint the student with techniques and procedures useful in the management of pediatric patients.

D. To acquaint the student with pediatric preventive medicine.

III. Content

This **eight-week experience** will include work-ups of nursery and outpatient cases and discussion with the resident or senior staff. The student will see patients with a house officer and assist with procedures as indicated. He is expected to read about the patients with whom he works. Didactic material will be presented in preventive pediatrics and growth and development. This course is prerequisite to further pediatric training.

IV. Procedures

A. Proficiency required

1. History and physical examination

2. Routine urinalysis and specimen collections

3. Tuberculin skin testing and reading

   4. Immunizations
   5. Maintenance of growth charts
   6. Assisting with intravenous fluids and lumbar punctures

B. Proficiency desirable

   1. Explanation to parents and child of procedures
   2. Newborn discharge instructions to mothers
   3. Safety measures in child care

V. Evaluation

The student will be evaluated on his participation in patient evaluation and by composite staff review.

VI. Reading - as assigned in

1. Nelson,Vaughan,McKay. Textbook of Pediatrics. 9th edition. W. B. Saunders Company, Philadelphia.
2. Green and Haggerty. Ambulatory Pediatrics. W. B. Saunders. 1968.
3. Silver, Kempe,Bruyn. Handbook of Pediatrics. Lánge Medical Publications. 1969.

GENERAL PEDIATRICS CLERKSHIP
(8 weeks)

				INSTRUCTOR
WEEK 1				
Monday:	A.M.	8:00 -	Cardiac Examination	
		9:00 -	Ped. Cardiology Clinic	
	P.M.	1:00 -	Denver Developmental Manual Study & Demonstration	Dr. Anderson
Tuesday:	A.M.	8:00 -	Lecture	
		9:00 -	Lecture: "Family Attitudes"	Dr. Hinman
		10:30 -	Ped. History & Physical	Dr. Kelsey
		11:50 -	Ped. X-Ray Conference	
	P.M.	1:00 -	Denver Developmental Test Practice and Write-up	Dr. Anderson
Wednesday:	A.M.	8:00 -	Nursery Techniques - Full-term Nursery	Miss Belton Miss Hampton
		9:00 -	Pediatric Grand Rounds	
		10:00 -	Maternal history & Newborn Exam-FTN	Dr. Johnson Mr. Dubay
	P.M.	1:00 -	Ped. Ward - Patient work-up assignment (1/2 class)	
Thursday:	A.M.	8:00 -	Lecture	
		9:00 -	Children's Home*	
		10:00 -	Interviewing Techniques*	
	P.M.	1:00 -	Pediatric Wards - Patient work-up assignment (other 1/2 class)	
Friday:	A.M.	8:30 -	Well baby conference	
		9:30 -	"Discharge Instruction to Mother"	Dr. Anderson
		10:30 -	Neurologic Exam	Dr. McLean
	P.M.	1:00 -	Resident ward rounds - 2 p.m. conference	Dr. Kelsey
WEEK 2-8				
Monday:	A.M.	8:00 -	Lecture	
		9:00 -	Reynolds Memorial Hospital Ped. Clinic	
	P.M.	1:00 -	North Carolina Baptist Hospital Well baby clinic	
Tuesday:	A.M.	8:00 -	Lecture	
		9:00 -	Health Dept. Well Baby and Immunization Clinics	
		11:50 -	Ped. X-Ray Conference	
	P.M.	1:00 -	Developmental Evaluation Clinic	
Wednesday:	A.M.	8:00 -	Lecture	
		9:00 -	Pediatric Grand Rounds	
		10:00 -	Nursery Rounds and Exams - FTN	Mr. Dubay
	P.M.	1:00 -	R.M.H. Pediatric Clinic	

WEEK 2-8 (cont'd)

Thursday:	A.M.	8:00 -	Lecture or Ped. OB Conference (3rd Thursday)	
		9:00 -	Children's **Home***	
		10:00 -	interviewing Techniques*	
	P.M.	1:00 -	Home Visits or Community Agencies Public Health Nurse- Newborn **	
Friday:	A.M.	8:30 -	Well baby conference	
		9:30 -	Well baby clinics	
	P.M.	1:00 -	Resident ward rounds	
		2:30 -	Weekly review conference and evaluation	Dr. Kelsey
		4:00 -	Pediatric Path. Conference (4th Friday)	Dr. Anderson

Each student will arrange one tour of duty per week from 6 - 10 p.m. with a resident on Emergency Room and Pediatric Wards.

** During the first half of the clerkship, each student will arrange two afternoon visits with a Public Health Nurse, and one home visit to a newborn patient after discharge. Visits to community agencies will be scheduled during the last half of the clerkship.

* Interviewing Techniques 1st half of Clerkship

* Children's **Home** last half of Clerkship

GENERAL OBS CLERKSHIP

I. Faculty

Stephen G. Anderson, M.D., Assistant Professor, Obstetrics and Gynecology
C. Duncan Cater, M.D., Instructor
Robert Dacus, III, M.D., Instructor
Other clinical instructors as assigned from the attending and resident staffs.

II. Objectives

1. To assist the physician's assistant student to develop the ability to take obstetric (antepartum) and gynecologic histories with particular emphasis on menstrual history.
2. To assist the student to develop the ability to do routine obstetric and gynecologic physical examinations.
3. To provide experience in prenatal and postnatal care.
4. To assist the student to learn the fundamentals of reproduction and contraception.
5. To provide experience in the family planning.

III. Basic Course Content

1. Length -- four months
    - A. Month one -- History, anatomy and physiology, diagnosis of pregnancy
    - B. Month two -- Antepartum, intrapartum, labor and delivery
    - C. Month three -- Complications of pregnancy
    - D. Month four -- Gynecologic abnormalities
2. Duties
    - A. Clinics
        - 1) Antenatal
        - 2) Gynecology
        - 3) Family Planning
    - B. Ob floor with night rotation
        - 1) Admission history and physical
        - 2) Intrapartum management
        - 3) Assistant on deliveries
    - C. Ward
        - 1) Postpartum patients
        - 2) Postoperative patients
3. Conferences, rounds, seminars, as scheduled -- see attachment

IV. Procedures

1. Proficiency required
   - A. Ability to take a history and perform routine physical examinations of obstetric and gynecologic patients.
   - B. Understanding of reproduction and contraceptive methods.
   - C. Ability to assist in a delivery and in gynecologic surgical procedures.

V. Evaluation

The physician's assistant student will be evaluated by the resident and attending staff concerning his accomplishments and performance of duties. Particular attention will be given to his understanding of the principles of obstetrics and gynecology presented. A written exam will be given.

VI. Reading Assignments

Instructors will assign reading material in relation to case assignments in the following texts?

1. E. S. Taylor. Essentials of Gynecology. Lea & Febiger, Philadelphia. 1969.

2. N. S. Eastman and L. M. Hellman. L. S. Williams' Obstetrics. Appleton-Century-Crofts, New York. 1966.

GENERAL OBS. CLERKSHIP

Typical Week

Monday	A.M.	8:00 - 9:00	Case Assignments
		9:00 - 12:00	New and Postpartum OB Clinic
	P.M.	1:00 - 4:00	Gyn Clinic
		4:00 - 5:00	Clinical Medicine Course
Tuesday	A.M.	8:00 - 9:00	Residents' Conference
		9:00 - 10:00	Rounds
		10:00 - 12:00	Case Assignments
	P.M.	1:00 - 2:00	Gyn Clinic
		2:00 - 4:00	Case Assignments
		4:00 - 5:00	Clinical Medicine Course
Wednesday	A.M.	8:00 - 9:00	Case Assignments
		9:00 - 12:00	Prenatal Clinic
	P.M.	1:00 - 4:00	Family Planning Clinic, Health Department
		4:00 - 5:00	Clinical Medicine Course
Thursday	A.M.	8:00 - 9:00	Ob/Gyn Conference
		9:00 - 12:00	Case Assignments
	P.M.	1:00 - 2:00	Physician's Assistant conference
		2:00 - 3:00	Case Assignments
		3:00 - 4:00	Rounds
		4:00 - 5:00	Clinical Medicine Course
Friday	A.M.	8:00 - 10:00	Case Assignments
		10:00 - 12:00	New and Postpartum Clinic
	P.M.	1:00 - 3:00	Case Assignments
		3:00 - 4:00	Tutorial
		4:00 - 5:00	Case Assignments

GENERAL SURGICAL CLERKSHIP

I. FACULTY

Jesse H. Meredith, M.D. Associate Professor of Surgery & Coordinator of P. A. Surgical Clerkships

Julius A. Howell, M.D. Associate Professor of Surgery

Staff -

Michael Sterchi, M.D. Assistant in Surgery
Michael Stein, M.D. Assistant in Surgery
Mrs. Rebecca Tisdale, R.N. Assistant Director, Operating Room

II. OBJECTIVES

A. To familiarize the student with the work of the surgeon, particularly the general surgeon, the patients, and diseases for surgical treatment.

B. To orient the student to the viewpoint of the surgeon toward the patient's general status and the relationship of that status to the indication and contraindication for surgery.

C. To familiarize the student with some concept of what happens to his patient in the operating room.

D. To initiate the student into the field of hospitalized surgical patient care and teach him the simpler procedures associated with that care.

E. To expose the student to the office practice of surgery including techniques and procedures of that area.

III. CONTENT

The students will observe the conferences and operating room. They will participate in the hospital ward and office care of the surgical patient. Duration of this Clerkship is 1 month.

IV. PROCEDURES

A. Proficiency required
   1. History and physical examinations
   2. Daily rounds and records
   3. Sterile technique
   4. Wound care
   5. Assist with minor procedures
   6. Intravenous techniques

B. Understanding
    1. Recognition of postoperative complications
    2. Recognition of major general problems which influence surgical success

V. Evaluation

The student is evaluated by the staff through evaluation of case reports, observation, and oral and written exam.

VI. Assigned readings in

Pre-and Post-Operative Care of the Surgical Patient, American College of Surgeons.
Anatomy in Surgery. Thorek. J.B. Lippincott Company, Philadelphia. 1962
Textbook of Surgery. Christopher. 9th Ed. W. B. Saunders, Philadelphia. 1968.

General Surgical Clerkship
Typical Week

Monday	A.M.	8:00-12:00 Operating Room
	P.M.	12:00-1:00 Rounds 2:00-4:00 Assigned cases 4:00-5:00 Clinical Medicine Class
Tuesday	A.M.	9:00-12:00 Dr. Meredith's office
	P.M.	1:00-4:00 Minor Surgery 4:00-5:00 Clinical Medicine Class
Wednesday	A.M.	7:30-9:00 Grand rounds 9:00-11:30 Operating room
	P.M.	12:30-2:00 Conference (oncology) 4:00-5:00 Clinical Medicine Course 5:00-6:00 Surgery Conference
Thursday	A.M.	9:00-12:00 Operating room & rounds
	P.M.	1:00-4:00 Minor Surgery 4:00-5:00 Clinical Medicine Course
Friday	A.M.	8:00-12:00 Operating Room
	P.M.	1:00-2:00 Rounds 2:00-5:00 Case Assignments

PULMONARY DISEASE CLERKSHIP

I. Faculty

Leo Heaphy, M.D., Assistant Professor of Medicine, House Staff

II. Content

Students will spend one month on the pulmonary disease service for development of competence and understanding of pulmonary function and disease processes. Students will work up cases, participate in pulmonary function tests and laboratory procedures including blood gas determinations. Students will observe and participate in the use of inhalation therapy equipment and evaluation of radiologic studies of the chest.

III. Objectives

A. To provide the opportunity for the student to become proficient in the physicial examination of the chest.

B. To provide the opportunity for the student to develop an understanding of respiratory disease and related pulmonary function studies.

C. To provide the opportunity for the student to understand the use and value of various types of inhalation therapy equipment.

D. To provide the opportunity for the student to understand the indications and value of the laboratory procedures associated with pulmonary diseases.

IV. Proficiency Required

A. Accurate history and physicals

B. Operation of blood gas analysis equipment

C. Operation of respirators

D. Ability to recognize abnormal densities in roentgenograms

E. Understanding of procedures for pulmonary function studies

F. Ability to draw arterial blood samples

V. Student Evaluations

The staff will evaluate the student's ability to utilize the special diagnostic equipment and procedures commonly utilized. Students will be generally evaluated by Dr. Heaphy, his resident staff and the laboratory personnel through observation and oral quiz.

VI. Reading

Assigned reading in The Lung; Clinical Physiology and Pulmonary Function Tests, 2nd Edition, Phys. Yearbook Medical Publishers.

PULMONARY DISEASE CLERKSHIP

Typical Week

Monday	A.M.	8:00 - 10:00 or 11:00	Working rounds with Chief of Service and resident
		10:00 - 12:00	Case assignment or follow case in surgery
	P.M.	1:00 - 3:00	Pulmonary Function Lab
		3:00 - 5:00	Case Assignments
Tuesday	A.M.	8:00 - 11:00	Working Rounds
		11:00 - 12:00	Case Assignments
	P.M.	1:00 - 2:00	One-hour blood gas lab on alternate Tuesday
		2:00 - 5:00	O.P.D.
Wednesday	A.M.	8:00 - 10:00	Working Rounds
		10:00 - 12:00	Case Assignments
	P.M.	1:00 - 3:00	Pulmonary Function Lab
		3:00 - 5:00	Case Assignments
Thursday	A.M.	8:00 - 11:00	Working Rounds
		11:00 - 12:00	Case Assignments
	P.M.	1:00 - 3:00	Pulmonary Function Lab
		3:00 - 5:00	Case Assignments
Friday	A.M.	8:00 - 10:00	Working Rounds
		10:00 - 12:00	Case Assignments
	P.M.	1:00 - 4:00	O.P.D.
		4:00 - 5:00	Conference

Evening and week-ends as assigned by staff.

GASTROENTEROLOGY CLERKSHIP

I. Faculty

A. Robert M. Kerr, M.D., Assistant Professor of Medicine
B. Thomas F. O'Brien, M.D., Associate Professor of Medicine

II. Objectives

A. To provide the opportunity for the student to become knowledgeable in the procedures of gastroenterology.
B. To provide the opportunity for the student to improve his skills in history and physical examinations in gastroenterological conditions.
C. To provide the student a broad range of patient problems related to the specialty.
D. To provide the student the opportunity to become familiar with the indications, contraindications and complications of procedures involved in gastroenterology.

III. Content

In this two-week clerkship the student will attend conferences, rounds, work up two or three assigned cases, and observe and participate in the special procedures of gastroenterology.

VI. Proficiency required

A. Know indications, contraindications and complications involved in the procedures utilized in gastroenterology.
B. Gastric intubation and gastric analysis.
C. Diagnostic x-ray procedures.
D. Most common pathophysiologic conditions of G.I. tract.

V. Evaluations

Students are evaluated through observation, case reports, discussion and oral quiz.

VI. Reading assignments in standard texts in relation to conditions under study and assignments in:

Function Gastro-intestional Diseases. Palmer. Williams and Wilkins, 1967.

GASTROENTEROLOGY CLERKSHIP

Typical Week

Monday	A.M.	8:00 - 9:00	Endoscopy - Gastric Analysis
		9:00 - 12:00	New office patients
	P.M.	12:00 - 1:00	Cardiopulmonary conference
		2:00 - 4:00	Office Patients
		4:00 - 5:00	Work rounds
Tuesday	A.M.	8:00 - 9:00	Endoscopy - Gastric Analysis
		9:00 - 12:00	Special procedures - (sigmoidoscopy, liver biopsy, biliary drainage, x-ray studies, etc.)
	P.M.	12:30 - 1:30	G. I. conference
		2:00 - 4:00	Rounds
		4:00 - 5:00	X-Ray review
Wednesday	A.M.	8:00 - 9:00	Endoscopy - Gastric Analysis
		9:00 - 11:00	Special procedures
		11:00 - 12:00	Medical staff meeting
	P.M.	1:00 - 4:00	Case assignments
		4:00 - 5:00	Work rounds
Thursday	A.M.	8:00 - 9:00	Endoscopy - Gastric Analysis
		9:00 - 11:00	Special procedures
		11:00 - 12:00	E.C.G. Problems
	P.M.	1:00 - 3:00	Case assignments or Rounds
		3:00 - 4:00	Infectious disease conference
		4:00 - 5:00	Work rounds
Friday	A.M.	8:00 - 10:00	Rounds
		10:00 - 11:00	Case assignments
		11:00 - 12:00	X-Ray conference
	P.M.	12:30 - 1:30	Autopsy conference
		1:30 - 3:00	Rounds
		3:00 - 4:00	X-Ray reading
		4:00 - 5:00	Work rounds

CARDIOLOGY CLERKSHIP

I. Faculty

A. Robert M. Kerr, M.D., Coordinator of Physician's Assistant assignments in the Department of Medicine
B. William J. Spencer, M.D., Assistant Professor of Medicine, Resident Staff
C. Lester E. Watts, M.D., Associate Professor of Medicine
D. John H. Edmonds, M.D., Associate Professor of Medicine
E. Henry S. Miller, M.D., Associate Professor of Medicine
F. Glenn C. Sawyer, M.D., Professor of Medicine
G. Robert N. Headley, M.D., Associate Professor of Medicine
H. James D. Yopp, M.D., Assistant in Medicine

II. Objectives

A. To provide the student the opportunity to develop skills in the physical assessment of patients with cardiac problems.
B. To provide the student the opportunity to understand and develop ability in the use of cardiologic diagnostic procedures and equipment.
C. To provide the student the opportunity to observe and participate in the treatment of the common cardiovascular diseases.

III. Basic Course Content

The student will be assigned cases for complete work-up in the hospital and in the O.P.D. He will attend conferences, teaching rounds and special seminars. He will observe and participate in the performance and interpretation of the E.K.G. and Phonocardiogram. Students will spend one week in the cardiac diagnostic lab and three weeks in wards and O.P.D. He will observe and participate in cardiac catheterizations.

IV. Procedures

A. Proficiency required

1. Ability to perform complete physical examination and history.
2. Ability to detect abnormal heart sounds to accurately describe the sounds.
3. Understand the use of special diagnostic procedures and equipment including cardio-pulmonary resuscitation equipment.
4. Perform an E.K.G. and be able to recognize abnormal tracings.

V. Evaluation

The student is evaluated by review of case work-ups, observations and examinations both oral and written.

VI. Selected Assigned Reading

Introduction to Electrocardiography. Hurst and Myerburg. McGraw Hill, N.Y. 1968.
Principles of Clinical Electrocardiography. Goldman. Lange Medical Publications, Los Angeles. 1970.
Ceciland Loeb Text Book for Medicine. Beeson and McDermott. W. B. Saunders, Philadelphia. 1967.

CARDIOLOGY CLERKSHIP

Typical Week

Monday	A.M.	8:00 - 10:00	Rounds
		10:00 - 12:00	Case assignments
	P.M.	12:30 - 2:00	E.K.G. interpretations
		3:00 - 5:00	Cardiac Problems Conference
Tuesday	A.M.	8:00 - 10:00	Rounds
		10:00 - 12:00	Case assignments
	P.M.	12:00 - 2:00	E.K.G. Phonocardiogram
		2:00 - 3:00	Cardiac Lab (exercise tests)
		3:00 - 5:00	Case assignments
Wednesday	A.M.	8:00 - 10:00	Rounds
		10:00 - 12:00	Case assignments
	P.M.	12:30 - 2:00	E.K.G. interpretations
		2:00 - 5:00	Case assignments
Thursday	A.M.	8:00 - 9:30	Rounds
		9:30 - 10:30	Cardiac conference
		10:30 - 12:00	Interview new office cases
	P.M.	12:00 - 1:00	E.K.G. Problems conference
		2:00 - 3:00	Case assignments
		3:00 - 4:00	Infectious Disease conference
Friday	A.M.	8:00 - 10:00	Rounds
		10:00 - 11:00	Case assignments
		11:00 - 12:00	X-Ray conference
	P.M.	12:30 - 2:00	E.K.G. Conference
		2:00 - 5:00	Interview new office cases

RADIOLOGY CLERKSHIP

I. Teaching Staff

A. Faculty

1. I. Meschan, M.D., Professor of Radiology.
2. J. F. Martin, M.D , Professor of Radiology.
3. Joseph E. Whitley, M.D., Professor of Radiology.
4. Laurence B. Leinbach, M.D., Associate Professor of Radiology.
5. Leo B. Snow, M. D., Assistant Professor of Radiology.
6. Nancy Whitley, M.D., Assistant Professor of Radiology.

B. Staff

Polly Story, R.T., and Rachel Clanton, R.T., Chief Technicians.

Technicians by assignment; fellows and residents per rotation.

II. Objectives

A. To expose the physician's assistant student to elementary radiographic technique of chest.

B. To allow the physician's assistant student further to develop his techniques in patient rapport.

C. To allow the student to understand the needs and usage of diagnostic radiology.

D. To provide the student with the opportunity further to develop his knowledge of radiographic anatomy.

E. To acquaint the student with the multiplicity and complexity of the roles assumed by the radiologist, and to enable him to utilize this specialist optimally in patient care.

III. Content

During this two-week rotation, the physician's assistant student is expected to attend the selected radiology conferences which are attended by the chief resident, to learn from the staff and to perform some elementary radiography (30 hours), to observe the staff at fluoroscopy (16 hours), and to review and expand his knowledge of radiographic anatomy and the clinical uses of diagnostic radiology from observation and on-line participation (40 hours).

IV. Procedures

A. Proficiency required

1. Positioning patients, selecting technique and obtaining routine chest films

2. Identifying and setting up for interpretation routine radiographs

B. Proficiency desirable

1. Positioning patients, selecting techniques for and obtaining routine extremity films

C. Understanding desired

1. Elementary radiographic technique

2. Gross radiographic anatomy

V. Evaluation

The physician's assistant student's conduct and the accomplishment of his duties will be evaluated by the technical and physician staff. His knowledge of radiographic anatomy as reflected in his examination of patients' radiographs will be evaluated through discussions and oral quizzes. The quality of the radiographs he makes as well as the safety of his technique will be judged.

VI. Reading

Assignments will be made in the following references:

Meschan. Radiographic Positioning and Related Anatomy. W. B. Saunders Company, Philadelphia. 1968.

Squire, Lucy, et al. Exercises in Diagnostic Radiology: The Chest. The W. B. Saunders Company, Philadelphia.

Squire. Fundamentals of Roentgenology. Harvard University Press, Cambridge.

CARDIOLOGY CLERKSHIP
Two Weeks

WEEK 1

MONDAY A.M.
8:00 - Radiographic - Pathologic Correlation Conf.
Autopsy room
8:30 - Fluoroscopy

P.M.
1:00 - Fluoroscopy

TUESDAY A.M.
8:00 - Radiographic - Pathologic Correlation Conf.
Autopsy room
8:30 - Technique - Room 1
11:50 - Pediatric Conference

P.M.
1:00 - Technique
4:00 - Proven Case Conference

WEDNESDAY A.M.
8:00 - Radiographic - Pathologic Correlation Conf.
Autopsy room
8:30 - Noon - Technique

P.M.
Noon 4:00 - Free Time
6:00 -10:00 - Technique

THURSDAY A.M.
8:00 - Radiographic - Pathologic Correlation Conf.
Autopsy room
8:30 - On-Line film interpretation
10:00 - 12:00 - Interviewing Techniques

P.M.
Noon - Literature Conference
1:00 - On-Line
4:00 - Diagnostic Review Conf.

FRIDAY A.M.
8:00 - Radiographic - Pathologic Correlation Conf.
Autopsy room
8:30 - On-line
11:00 - Medical X-Ray Conf.

P.M.
1:00 - On-line
4:00 - Diagnostic Review Conf.

SATURDAY A.M.
8:00 - Neuroradiology Conf.
9:00 - Noon - On-line

WEEK 2

MONDAY A.M.
8:00 - Radiographic - Pathologic Correlation Conf.
Autopsy room
8:30 - Fluoroscopy

P.M.
1:00 - Fluoroscopy

TUESDAY A.M.
8:00 - Radiographic - Pathologic Correlation Conf.
Autopsy room
8:30 - Technique
11:50 - Pediatric Conference

	P.M.	1:00 - Technique 4:00 - Proven Case Conference
WEDNESDAY	A.M.	8:00 - Radiographic - Pathologic Correlation Conf. Autopsy room 8:30 - Noon - Technique
	P.M.	Noon - **4:00** - Free 6:00 -10:00 - Technique
THURSDAY	A.M.	8:00 - Radiographic - Pathologic Correlation Conf. Autopsy room 8:30 - On-line 10:00 - 12:00 - Interviewing Techniques
	P.M.	Noon - Literature Conference 1:00 - On-line 4:00 - Diagnostic review conf.
FRIDAY	A.M.	8:00 - Radiographic - Pathologic Correlation Conf. Autopsy room 8:30 - On-line 11:00 - Medical X-Ray Conf.
	P.M.	1:00 - On-line 4:00 - Diagnostic Review Conf.
SATURDAY	A.M.	8:00 - Neuroradiology Conference 9:00 - Noon - On-line

HEMATOLOGY CLERKSHIP

I. Teaching Staff

M. Robert Cooper, M.D., Assistant Professor of Medicine
Fredrick Richards, II, M.D., Instructor in Medicine
Charles L. Spurr, M.D., Professor of Medicine

II. Objectives

A. To provide the student with the opportunity to become knowledgeable in the special procedures used in hematology.
B. To provide the student with an understanding of the indications and limitations of these procedures.
C. To provide the student the opportunity to become familiar with the important hematologic disorders.

III. Basic Course Content

Students will spend from two to four weeks in this service depending on their specialty choice. They will spend about one third of their time in the hematology lab and the blood bank observing and participating in procedures and tests. They will attend conferences and ward rounds and will be assigned patients to workup.

IV. Proficiency Required

A. Ability to obtain specimens for special lab procedures, blood cultures, bone marrow specimens, etc.
B. Principles of blood matching for transfusion.
C. Understanding of the major blood dyscrasias and their treatment.
D. Routine laboratory procedures for blood.

V. Evaluation

By observation of performance, reports and oral quiz.

VI. Assigned Readings

McDonald. Atlas of Hematology. 3rd ed. Williams and Wilkins Company, Philadelphia. 1970.

HEMATOLOGY CLERKSHIP

Typical Week

Monday	A.M.	8:00 - 11:00	Hematology Lab
		12:00 - 1:00	C.P.C.
	P.M.	2:00 - 3:00	Ward Class
		3:00 - 5:00	Case Assignments
Tuesday	A.M.	8:00 - 11:00	Rounds
		11:00 - 12:00	Hematology Conferences
	P.M.	1:00 - 3:00	Case Assignments
		3:00 - 5:00	Lab Conference
Wednesday	A.M.	8:00 - 10:00	Rounds
		10:00 - 11:00	Endoc./Renal Conference
		11:00 - 12:00	Staff Conference
	P.M.	2:00 - 3:00	Ward Class
		3:00 - 4:00	Lab
		4:00 - 5:00	Working Rounds
Thursday	A.M.	8:00 - 10:00	Hematology Lab
		10:00 - 12:00	Blood Bank and Transfusion Service
	P.M.	1:00 - 2:00	X-Ray Conference
		2:00 - 3:00	Ward Class
		3:00 - 5:00	Case Assignments
Friday	A.M.	8:00 - 11:00	Hematology Lab
		11:00 - 12:00	Conference
	P.M.	1:00 - 2:00	Autopsy
		2:00 - 3:00	Ward Class
		3:00 - 5:00	Working Rounds

OPERATING ROOM CLERKSHIP

I. Faculty

Jesse H. Meredith, M.D., Professor of Surgery
Rebecca Tisdale, R.N., Assistant Director, Inservice Education

II. Objectives

A. To provide training for the student to be able to transport, position, and prepare patient for a surgical procedure.
B. To be able properly to clean and process instruments and sterile supplies.
C. To be able to operate all types of sterilizers.
D. To develop a basic understanding of anesthetic agents and related hazards.
E. To understand and develop the ability to assist in surgical procedures.

III. Basic Course Content

During this one month clerkship the student is taught the proper preparation of the surgical patient, principles of operating room techniques, care and use of instruments and materials, and observation of one common surgical procedure, sterility.

IV. Procedures

A. Proficiency required
   1. Preparation of patient for surgical procedures
   2. Proper care and use of surgical instruments and materials
   3. Sterile techniques in the operating room
B. Proficiency desired
   1. Able to assist in major surgical procedures

V. Evaluation

The student is under observation while in operating room and is constantly evaluated as he progresses.

VI. Selected reading assignments

Operating Room Manual. Yeager. Second Edition. Putnam, New York. 1965.
Introduction to Operating Room Techniques. Berry. Third Edition. McGraw-Hill, New York. 1966.

OPERATING ROOM CLERKSHIP SCHEDULE, APPROXIMATE HOURS

Care of the Patient During Surgery

Transporting and positioning patient	3 hours
Surgical preparations of patient	3 hours
Anesthetics and related hazards	2 hours

Principles of Operating Room Techniques

General principles of aseptic techniques	2 hours
The surgical scrub	2 hours
Gowning and gloving	1 hour
Draping the operation field	2 hours
Surgical materials and needles	3 hours
Care of specimens	1 hour
Drains, Dressings, etc.	1 hour
Contaminated case routine	2 hours

Instruments

General instruments	4 hours
Specialty instruments	3 hours

Surgical Procedures	15 - 20 hours

PSYCHIATRIC CLERKSHIP

I. Teaching Staff

William S. Pearson, M.D., Associate Professor of Psychiatry and coordinator of all educational programs in the department.

Jack M. Rogers, M.D., Assistant Professor of Psychiatry.

Other members of the department and the house staff participate in the training. Part-time clinical faculty members also participate.

II. Content

Dr. Pearson is responsible for coordination of all training in the department and is specifically responsible for the training of the physician's assistant student in the North Carolina Baptist Hospital psychiatric clinic and in the psychiatric ward. Dr. Rogers functions in a similar fashion in the psychiatric service in Forsyth Memorial Hospital where physician's assistant students are also assigned. Experience is provided in care of acute psychiatric patients.

III. Objectives

A. To give the physician's assistant student the opportunity to observe and participate in the initial care of the psychiatric patient.

B. To give the physician's assistant student the opportunity to participate in the development of the long term therapy plan.

C. To give the physician's assistant student the opportunity to learn and practice history taking and physical examinations of variety of psychiatric patients.

D. To give the physician's assistant student the opportunity to gain knowledge of and use of psychological and psychiatric social workers in the evaluation and therapy of the patient.

E. To give the physician's assistant student the opportunity to observe and participate in special diagnostic and therapeutic procedures, i.e., E.E.G., shock therapy, etc.

F. To give the physician's assistant student the opportunity to become familiar with chemotherapy of psychiatric conditions.

IV. Evaluation

By staff observation, discussion and oral quiz.

V. Reading

As assigned by the staff.

PSYCHIATRIC CLERKSHIP
Typical Week

Monday	A.M.	8:00 - 9:00	Rounds
		9:00 -11:00	O.P.D.
		11:00 -12:00	O.P.D. diagnostic conference
	P.M.	1:00 - 2:00	Inpatient diagnostic conference
		2:00 - 4:00	Inpatient assignments
		4:00 - 5:00	Rounds
Tuesday	A.M.	8:00 - 9:00	Rounds
		9:00 -12:00	Inpatient assignments
	P.M.	1:00 - 2:00	Inpatient therapy conference
		2:00 - 4:00	E.E.G. laboratory
		4:00 - 5:00	Rounds
Wednesday	A.M.	8:00 - 9:00	Rounds
		9:00 -11:00	O.P.D.
		11:00 -12:00	O.P.D. therapy conference
	P.M.	1:00 - 2:00	Inpatient diagnostic conference
		2:00 - 4:00	Inpatient assignments
		4:00 - 5:00	Rounds
Thursday	A.M.	8:00 - 9:00	Rounds
		9:00 -12:00	E.E.G.
	P.M.	1:00 - 2:00	Inpatient therapy conference
		2:00 - 4:00	Inpatient assignment

Friday A.M. 8:00 - 9:00 Rounds
9:00 -11:00 O.P.D.
11:00 -12:00 O.P.D. diagnostic conference
2:00 - 4:00 Inpatient assignments
4:00 - 5:00 Rounds

Alternate evenings and week-end assignments.

SPECIAL PEDIATRIC ASSIGNMENT

I. Teaching Staff

A. Faculty

1. W. M. Kelsey, M.D.
2. Katherine Anderson, M.D.
3. Alanson Hinman, M.D.
4. Carolyn Huntley, M.D.
5. Archie Johnson, M.D.
6. Robert McKone, M.D.
7. William McLean, M.D.
8. Ruth O'Neal, M.D.
9. Richard Patterson, M.D.
10. William Quivers, M.D.
11. Doris Sanders, M.D.
12. Elia Dimitri, M.D.
13. Anjou German, M.D.
14. Barbara Erwin, M.A.
15. Tamara Hahn, M.A.
16. Mary Ann Hayes, M.A.
17. James Finger, M.D.
18. Public Health Nurses

B. House Staff

1. Chief Resident
2. Pediatric Residents
3. Pediatric Interns

II. Objectives

A. To develop skill in pediatric history and physical exam and recording.
B. To increase understanding of normal human development.
C. To acquaint the student with the common diseases of childhood and deviations from normal development.
D. To provide experience with a variety of specialty and general pediatric patients.
E. To increase the student's skill in assessing sick children and well children and recognition of emergencies.
F. To increase the student's skill in interviewing and teaching parents.
G. To increase the student's knowledge of preventive pediatrics.
H. To develop competence in developmental, visual and auditory screening.
I. To acquaint the student with available community resources.

III. Content

This experience (10 months) will include patient work-ups on the services listed below. The student will assist the house officer with diagnostic and therapeutic procedures as indicated. He will follow newborns throughout their course and children through acute illnesses. He will attend rounds, conferences, and seminars and make visits to community agencies as scheduled. He will be expected to broaden his reading as applied to patients with whom he works.

Services	Duration
Pediatric Allergy	1 month
Pediatric Cardiology	1 month
Pediatric Hematology	1 month
Pediatric Neurology	1 month
Developmental Evaluation Clinic	1 month
Obstetric Clerkship	1 month
Elective	1 month
Preceptorship of a Practicing Pediatrician	3 months

IV. Procedures

A. Proficiency required

1. History and physical examination
2. Collection of routine laboratory specimens and carrying out routine lab procedures
3. Isolation technique for infectious disease
4. Immunizations and tuberculin skin testing
5. Visual, auditory and developmental screening
6. Maintenance of growth charts
7. Assisting with intravenous fluids and lumbar punctures

B. Proficiency desirable

1. Starting and maintaining intravenous fluids
2. Anticipatory guidance for prevention of problems related to the normal developmental process.

C. Understanding required

1. Normal child development
2. Nutritional requirements of infancy and childhood
3. Management of minor childhood illnesses
4. Management of minor behavorial problems

V. Evaluation

The student will be evaluated on his participation in patient evaluation and parent instruction. His knowledge of individual cases is assessed by critique of records and by oral examination.

IV. Reading - as assigned in

A. Nelson, Vaughan, McKay. Textbook of Pediatrics. 9th edition. W. B. Saunders Company. Philadelphia.
B. Green and Haggerty. Ambulatory Pediatrics. W. B. Saunders. 1968.
C. Silver, Kempe, Bruyn. Handbook of Pediatrics. Lange Medical Publications. 1969.
D. Schaffer. Diseases of Newborn. W. B. Saunders. 1965.
E. Nadas. Pediatric Cardiology. W. B. Saunders. 1963.

SPECIAL SURGICAL ASSIGNMENT

I. Faculty

Jesse H. Meredith, M.D. Assoc. Prof. of Surgery & Coordinator of Physician's Assistants' Surgical Clerkships
Julius A. Howell, M.D. Assoc. Prof. of Surgery
Michael Sterchi, M.D. Assistant in Surgery
Michael Stein, M.D. Assistant in Surgery
Mrs. Rebecca Tisdale, R.N., Assistant Director, Operating Room

II. Objectives

A. To develop the ability to assess physically and to evaluate the surgical patient.
B. To understand the indications and contraindications for surgical procedures.
C. To acquire the skills for assisting in the operating room.
C. To observe and participate in special diagnostic procedures.

III. Content

The student will have completed the operating room clerkship prior to this clerkship. During this 3 months clerkship the student participates in hospital and office care; attends all conferences and teaching rounds; performs minor surgical procedures and assists in the operating room.

IV. Procedures

A. Proficiency Required
   1. Minor Surgical Procedures
   2. Assisting in Major Surgical Procedures
   3. Intravenous Techniques and Spinal Tap
   4. Sterile Technique & Wound Care
   5. Preparation of Patient for Surgical Procedure
   6. Care & Use of Surgical Instruments & Materials
   7. Physical Assessment of the Surgical Patient
   8. Recognition of Post-Operative Complications
   9. Use of Monitoring Equipment

V. Evaluation

The student is evaluated by assessment of case workups, by observation and by examination. He is required to review the literature on two assigned topics and submit written reports.

VI. Selected Reading Assignments

Textbook of Surgery. Christopher. 9th Ed.
The W. B. Saunders Company, Philadelphia. 1968.
Principles of Surgery. Schwartz.
McGraw-Hill Book Company, New York. 1969.
Fundamentals of Gen. Surgery. Guis. Yearbook
Medical Publishers, Chicago. 1966.
Anatomy in Surgery Thorek. J.B. Lippincott Co.,
Philadelphia. 1962.

Special Surgical Assignment
Typical Week

Monday	A.M.	8:00-12:00 Operating Room
	P.M.	1:00-2:00 Rounds 2:00-5:00 Intensive Care Unit
Tuesday	A.M.	8:00-12:00 Operating Room
	P.M.	1:00-5:00 Office Practice
Wednesday	A.M.	7:30-9:00 Grand Rounds 9:00-11:30 Operating Room
	P.M.	12:30-2:00 Oncology Conference 2:00-4:00 Intensive Care Unit 4:00-6:00 Surgery Conference
Thursday	A.M.	8:00-12:00 Operating Room
	P.M.	1:00-5:00 Minor Surgery
Friday	A.M.	8:00-12:00 Office Practice
	P.M.	1:00-2:00 Rounds
Saturday	P.M.	2:00-12:00 Case Assignments & Emergency Room

On call alternate nights and alternate weekends.

SPECIAL OB/GYN ASSIGNMENT

I. Faculty

Stephen G. Anderson, M.D., Assistant Professor, Obstetrics and Gynecology
C. Duncan Cater, M.D., Instructor
Robert Dacus, III, M.D., Instructor
Other clinical instructors as assigned from the attending and resident staffs.

II. Objectives

- A. To teach the physician's assistant student how to take obstetric (antepartum) and gynecologic histories with particular emphasis on menstrual history.
- B. To familiarize the student with fundamentals of reproduction.
- C. To teach the student how to perform a pelvic exam, obtain Pap smears and determine what constitutes a normal exam.
- D. To provide experience in the management of uncomplicated antepartum patients.
- E. To provide experience in the management and conduct of normal vaginal delivery.
- F. To acquaint the student with obstetric complications and operative deliveries (forceps and Caesarean section).
- G. To provide a background in moden contraceptive practices.
- H. To acquaint the student with common gynecologic abnormalities.

III. Basic Course Content

- A. Length -- four months
- B. Duties
  - 1. Clinics
    - a. Antenatal
    - b. Gynecology
    - c. Family planning
  - 2. Ob floor with night rotation
    - a. Admission history and physical
    - b. Intrapartum management
    - c. Assistant on deliveries
  - 3. Ward
    - a. Postpartum patients
    - b. Postoperative patients
- C. Conferences, rounds, seminars, as scheduled -- see attachment

D. Reading assignments
   1. Taylor. Essentials of Gynecology. Lea & Febiger, Philadelphia. 1969.
      Chapters 2-4, pp. 17-53
      Chapters 5-6, pp. 58-88
      Chapters 11-14, pp. 136-210
      Chapter 16, pp. 221-238
      Chapter 20, pp. 300-308
   2. Eastman and Hellman. Obstetrics. Appleton-Century-Crofts, New York. 1966.
      Chapters 9-10, pp. 260-277; 285-293
      Chapters 11-12, pp. 310-334
      Chapters 14-17, pp. 356-440
      Chapter 30, pp. 823-837
      Chapter 24, pp. 612-638
      Chapter 28, pp. 688-745
      Chapter 36, pp. 955-975
      Chapter 41, pp. 1068-1074
   3. Assigned reading in current journals

IV. Procedures

A. Proficiency required
   1. Conduct of pelvic exam
   2. Obtaining Pap smear
   3. Conduct of normal labor and delivery

B. Understanding desired
   1. Management of obstetric complications
   2. Caesarean section

V. Evaluation

The physician's assistant student will be evaluated by the resident and attending staff concerning his accomplishments and performance of duties. Particular attention will be given to his understanding of the principles of obstetrics and gynecology presented. A written report on an assigned topic is required. A written exam will be given.

SPECIAL OBS/GYN ASSIGNMENT

Typical Week

Monday	A.M.	8:00 - 9:00	Case Assignments
		9:00 - 12:00	New and Postpartum OB Clinic
	P.M.	1:00 - 4:00	Gyn Clinic
Tuesday	A.M.	8:00 - 9:00	Residents' Conference
		9:00 - 10:00	Rounds
		10:00 - 12:00	Case Assignments
	P.M.	1:00 - 2:00	Gyn Clinic
		2:00 - 5:00	Case Assignments
Wednesday	A.M.	8:00 - 9:00	Case Assignments
		9:00 - 12:00	Prenatal Clinic
	P.M.	1:00 - 4:00	Family Planning Clinic
Thursday	A.M.	8:00 - 9:00	Ob-Gyn Conference
		9:00 - 10:00	Rounds
		10:00 - 12:00	Interviewing Techniques
	P.M.	1:00 - 2:00	PA Conference
		2:00 - 3:00	Case Assignments
		3:00 - 4:00	Junior rounds
Friday	A.M.	8:00 - 9:00	Case Assignments
		9:00 - 12:00	New and Postpartum
	P.M.	1:00 - 3:00	Case Assignments
		3:00 - 4:00	Junior Tutorial
Saturday	A.M.	10:00 - 11:00	Senior Rounds

VETERANS ADMINISTRATION HOSPITAL
ASSIGNMENT

I. Faculty

R.H. Robertson, M.D., Chief of Staff and Coordinator of Physician's Assistant Training Program
C.P. Parker, M.D., Chief of Receiving Unit
J.D. Meschan, M.D., Chief of Medicine
J.D. Norris, M.D., Chief of Surgery
J.W. Gibson, M.D., Chief of Physical Medicine and Rehabilitation
J.L. Carter, M.D., Chief of Psychiatry, Unit 4

The clinical psychologists and social workers also participate in the training program.

II. Objectives

A. To provide student with the opportunity to improve his skills in the mental and physical evaluation of patients.

B. To provide the student with the opportunity to gain additional experience in the care of long-term and chronic illnesses.

C. To provide student with the opportunity to participate in programs of providing complete care through physical and occupational rehabilitation and placement in gainful employment, if possible.

D. To provide the student with the opportunity to become familiar with the functions of all community agencies which may be of assistance to the patient upon discharge from the hospital.

III. Content

The student will spend one month in the receiving unit, performing complete workups for determination of the therapy plan (includes, in addition to the usual medical problems, mentally disturbed patients, drug addicts, alcoholics, etc.). He will follow selected cases on the wards throughout the two-month assignment. Two weeks will be divided and integrated between the psychiatric service and the physical medicine and rehabilitation service and two weeks will be spent in the medical service where long-term and chronic cases will be assigned.

This assignment provides unique opportunities to become more knowledgeable in psychotherapy, treatment of alcoholics (delirium tremens), drug addicts, chronic diseases, physical therapy, rehabilitation, team approach to patient evaluation and development of comprehensive care and functions of community agencies in rehabilitation and job placement. The students are closely supervised and continually challenged to stimulate library research and study.

IV. Procedures

A. Proficiency required

1. In addition to proficiency in physical examinations and history taking, the student should understand methods and procedures for mental evaluations.

2. The student will know the indications, limitations, use of agency referrals and methods of physical and vocational rehabilitation.

3. The student should become familiar with the acute care and handling of alcoholics, drug addicts and mentally disturbed patients.

B. Proficiency desired

1. Spinal tap and cell count

2. Gastric intubation and gastric analysis

3. Inhalation therapy equipment use

4. Physical therapy equipment use

V. Evaluations

Semi-monthly evaluation forms are submitted by the supervising physician. The Director of the Physician's Assistant Training Program visits the VA facilities every three weeks for a conference with the supervising physicians and the students for purposes of evaluating student progress, problems, and weaknesses.

VI. Reading Assignments

The VA Hospital has a fine library. Students are assigned topics for review of the literature and are orally quizzed on their interpretation of the literature.

FORSYTH HOSPITAL EMERGENCY ROOM ASSIGNMENT

I. Teaching Staff

Joyce Reynolds, M.D.
George Podgarny, M.D.
David Nelson, M.D.
Paul Wilcox, M.D.

II. Content

The above physicians devote their full time in the Emergency Clinic, rotating in order to cover the clinic twenty-four hours a day, seven days a week. The evening and weekend shifts see a large number of walk-in medical cases as well as true emergencies. The surgical, medical, family practice, and obstetrical assistants spend one to two months in the Emergency Room on the 4 p.m. to 12 midnight shift where they gain supervised experience in the care of seriously injured and ill patients as well as the walk-in non-emergency cases which are cared for and referred when necessary. Students actively participate in the care of patients, learning triage and emergency procedures. They do suturing, tying of bleeders, splint and cast application, dressings, gastric lavage, intravenous punctures, spinal taps, etc.

III. Objectives

A. To provide the opportunity for the student to display and improve his ability in the solution of problems of both emergency and routine clinical cases.

B. To provide experience in triage and emergency procedures.

C. To provide the student the opportunity to learn the care and management of acute trauma.

D. To provide additional experience in history and physical examinations.

IV. Proficiency required

1. Ability to assess and evaluate the patient's condition and determine immediate care necessary.

2. Understanding of immediate treatment of shock and ability to carry out procedures.

3. Assembly and preparation of treatment instruments and materials (sterile technique).

4. Wound care, i.e., control of hemorrhage, suturing and dressings.

5. Ability to perform emergency laboratory procedures indicated by patient's condition.

6. Use and indications for temporary splints, casts, etc.

7. Precautions in the movement and transfer of patients.

V. Evaluation

The student will be continually evaluated by the staff physician by observing and discussing his performance and skills. Errors in judgment and procedures will be controlled and proper performance demonstrated. The staff will forward the completed evaluation schedules semi-monthly.

VI. Readings

The Emergency Room staff will assign reading in texts and current journals in accordance with individual student needs.

REYNOLDS HOSPITAL ASSIGNMENT

I. Teaching Staff

William J. Spencer, M.D., Full-time Chief of Medicine

William W. Quivers, M.D., Full-time Chief of Pediatrics

E. A. Austin, M.D., Full-time Chief of Surgery

Tom L. Clarke, M.D., Acting Chief of Obstetrics

Joseph G. Gordon, M.D., Full-time Chief of Radiology and Chief of Hospital Staff

II. Content

Students will be assigned to the department of their specialty for one or more months. Family practice assistants will spend time in the four major clinical departments. The students will attend conferences, rounds and staff meetings. Cases will be assigned both in the hospital and O.P.D. for complete work ups. His duties will include starting and regulating of intravenous infusions, blood transfusions and giving intravenous medication. He will follow patients from admission to discharge.

III. Objectives

To give the student the opportunity to improve his techniques and skills in patient assessment and evaluation with a broad spectrum of clinical conditions.

.....Opportunity to observe and participate in therapeutic regimens, their indications, availability, reliability and limitations as seen in a community hospital with no house staff.

.....Opportunity to improve his skills in diagnostic procedures, their indications and limitations.

IV. Proficiency required

Complete and adequate reporting of historical, physical findings, laboratory and diagnostic procedure data.

Ability to accurately describe and summarize pertinent findings.

Ability to perform and/or participate in diagnostic and treatment procedures, i.e. starting and controlling intravenous therapy, passage of naso-gastric tubings, venipuncture technique, catherization, specimen collection, lumbar puncture, etc.

V. Evaluation

The student will be evaluated by observation, accuracy of written records and by oral quiz.

VI. Reading in current journals and texts will be required related to the condition of the assigned patient.

W.S. COMPREHENSIVE HEALTH PROGRAM ASSIGNMENT

I. Teaching Staff

Harold Wilson, M.D. --- Director of the Program
Elia Dimitri, M.D.
Anjou German, M.D.
David Savitz, M.D.

II. Content

The program is a family comprehensive health program for a defined geographic area in Winston-Salem where most of the residents are disadvantaged. It comprises several neighborhood health centers and a control clinic with Reynolds Memorial Hospital providing backup services.

The students work under supervision in the neighborhood health centers, the central clinic and may follow patients referred to Reynolds Memorial Hospital.

Students gain experience in family problems, comprehensive care of the family and the utilization of community referral agencies in the solution of family health and welfare problems. Students are assigned for 2-4 weeks.

III. Objectives

1. To provide the student the opportunity to gain experience in medical care and health maintenance on a family comprehensive basis.
2. To provide the student the opportunity to participate in neighborhood health center programs which include neighborhood health workers, social service personnel, rehabilitation programs and community agency resources.
3. To provide the student the opportunity to observe the functions of advisory committees connected with the program which include a heavy representation of the consumers.

IV. Proficiency required

1. Ability to relate successfully to the family and its individual members in order to determine needs, procedures, and services required.
2. Ability to understand and to utilize community resources.
3. Ability to motivate clients to accept and utilize the services of the program.

V. Evaluation

The student will be evaluated by staff observation, by written reports and by oral quiz.

VI. Reading

Articles will be assigned by the staff.

WINSTON-SALEM COMPREHENSIVE HEALTH PROGRAM
SERVICE ROTATIONS

Monday	A.M.	9:00 to 12:00	- Kimberly Park Neighborhood Center
	P.M.	1:00 to 5:00	- West Salem Neighborhood Center
Tuesday	A.M.	9:00 to 12:00	- Happy Hill Neighborhood Center
	P.M.	1:00 to 4:00	- Chart review and discussion
Wednesday	A.M.	9:00 to 12:00	- Elective time
	P.M.	1:00 to 5:00	- Reynolds Hospital Well-Baby Clinic or Central Comprehensive Clinic
Thursday	A.M.	9:00 to 12:00	- Reynolds Hospital Pediatric Clinic
	P.M.	1:00 to 5:00	- Happy Hill Neighborhood Center
Friday	A.M.	9:00 to 10:00	- Reynolds Hospital Rounds
		10:00 to 12:00	- X-ray Conference Reynolds Memorial Hospital
	P.M.	1:00 to 5:00	- Kimberly Park Neighborhood Center

Some neighborhood centers are open on Saturdays and evenings - students will rotate as assigned.

SPECIALTY DEPARTMENTAL ASSIGNMENTS

I. Teaching Staff

Robert M. Kerr, M.D., Assistant Professor of Medicine. Coordinator of training for the physician's assistant in Department of Medicine.

Jesse H. Meredith, M.D., Associate Professor of Surgery. Coordinator of training for the physician's assistant in Department of Surgery.

Katherine H. Anderson, M.D., Associate Professor of Pediatrics. Coordinator of training for the physician's assistant in Department of Pediatrics.

Stephen G. Anderson, M.D., Assistant Professor of Obstetrics. Coordinator of training for the physician's assistant in Department of Obstetrics.

William S. Pearson, M.D., Assistant Professor of Psychiatry. Coordinator of training for the physician's assistant in the Department of Psychiatry.

James E. Whitley, M.D., Professor of Radiology. Coordinator of training for the physician's assistant in Department of Radiology.

Other members of the departments and their house staffs participate in the training.

II. Content

Physician's assistants being trained in obstetrics, surgery, pediatrics and medicine are assigned to a specialty department for four to six months. The student functions in a manner similar to that of a medical intern, being given increasing responsibilities in the care of assigned patients in the outpatient department and hospital. During the assignment the student rotates for varying periods of time through the subspecialty sections.

Students participate in postmortem examinations and conferences, ward rounds, case and therapy conferences, and house staff conferences. They observe and participate in special therapy and diagnostic procedures, i.e., X-ray, organ scan, arteriographic studies, etc. Students will also be involved in the handling of psychosomatic problems with the help of members of the psychiatric staff.

III. Objectives

A. To give the specialized physician's assistant student more in-depth training in the assessment and evaluation of the types of patients cared for by the department.

B. To give the specialized physician's assistant student the opportunity further to perfect his techniques and skills in history taking, physical examinations and special procedures.

C. To give the specialized physician's assistant student the opportunity better to understand the needs of patients and to improve his patient rapport.

D. To give the specialized physician's assistant student the opportunity to gain experience in the care of a wide variety of inpatient and outpatient problems.

E. To give the specialized physician's assistant student the opportunity to utilize his knowledge of and need for the services of community agencies for hospital patients being discharged and for patients visiting the outpatient department.

F. To give the specialized physician's assistant student the opportunity to gain knowledge and use of services of other allied health and social workers.

G. To give the staff of the specialty department the opportunity for extended observation and evaluation of the student's knowledge, performance and skills.

IV. Evaluation

The student will be evaluated on his conduct and on the accomplishment of his duties while serving with the staff and residents. He will be evaluated on his rapport with patients and patients' families. The student will be evaluated semi-monthly on the evaluation schedules and will be given an oral and a written examination at the termination of the assignment.

V. Required Reading

The supervising physician will assign readings related to patient problems.

DEVELOPMENTAL EVALUATION CLINIC ASSIGNMENT

I. Teaching Staff

Alanson Hinman, M.D.	Director
M. A. Hayes, M.A.	Clinical psychologist
T. K. Hahn, B.A.	Speech & Audiology
B. D. Erwin, M.A.	Growth & Development
M. C. Valand, A.C.S.W.	Chief Social Worker
Part-time medical specialists from the medical school	

II. Content

The Developmental Evaluation Clinic is a training, service and research regional referral facillity associated with the Bowman Gray School of Medicine. It is a multidisciplinary clinic composed of specialists from disciplines of medicine, social work, child development, speech and hearing, and psychology.

The evaluation of the referred child or adolescent is accomplished through a team approach with the recommendations developed through a staff conference.

The students participate in the staff conferences and observe and participate in developmental testing, intelligence testing, psychiatric evaluation, physical (including neurological) evaluation and hearing and speech services.

III. Objectives

Provide the student the opportunity to understand the developmental evaluation process and procedures.

Provide the student the opportunity to observe and participate in recommended therapy plan.

IV. Evaluation

The student is evaluated by the staff through observation and discussion.

V. Reading

Selected reading assignments are required as determined by the Developmental Evaluation Clinic staff.

COMMUNITY AGENCY ASSIGNMENTS

I. Teaching Staff

Katherine Anderson, M.D. coordinates the assignments with the agency representatives who provide the teaching and experience.

II. Content

Students are assigned (for varying periods from one-half day to several days) to community health and welfare agencies which provide special service for well and sick persons. Students learn about the services and their use in providing assistance to people needing help beyond what can be provided by the physician.

Agency	Assignment	Teaching Staff
Dept. of Social Services Child Welfare	1/2 day	Helen Bridges
Domestic Court Counseling	1/2 day	James Burges
Family Service - Case Conference	1/2 day	Sarah Austen
Community Day Care Center for Handicapped	1/2 day	Alice Johnson Lee Baity, P.T.
Boarding Facility for Retarded Children - Amos Cottage	2 half days	Shirley Burch
School for Pregnant Girls (Unmarried)	1/2 day	Mrs. Cooper
Health Department		
Immunization Clinic		Dr. J. A. Finger & Staff
Well Baby Clinic		
V. D. Clinic		
T. B. Clinic	Varying Periods of time depending on specialty	
Food Handlers Exam		
Food & General Sanitation		
Pollution Control		
Home visit with P.H. Nurse (visiting nurse service)		
Family Planning Clinic	Varies by Specialty	Dr. Gobble & Staff
Child Guidance Clinic	1/2 day	Dr. P. Bragg
County Mental Health Clinic	1/2 day plus	E. Klutz
Methodist Children's Home Clinic	1/2 day	Visiting Medical Staff
Alcoholism Program (Medical and/or psychiatric treatment)	1/2 day	R. Godfrey
Florence Crittenton Home, Inc., (For unwed mothers)	1/2 day	H.K. Anderson

III. Objectives

To give students opportunity to become informed of community services which will be helpful in the care and assistance of physicians' clients.

IV. Education

Students will be observed in the adequacy of their understanding of the use of community agencies in their work in clinics and on the wards.

V. Reading

Materials are provided by each agency.

PRECEPTORSHIP WITH PRACTICING PHYSICIAN

I. Teaching Staff and Content

The practicing physicians are carefully selected as to their ethics, ability and reputation among their peers. An attempt is made to match personalities in order to avoid conflicts and enhance acceptance of the student. The physician is carefully oriented by the staff prior to the assignment and is visited during the first two weeks for further orientation and discussions of the student's abilities. Staff visit the physician whenever a problem arises and will routinely visit every three to four weeks.

II. Objectives

1. To provide the student the opportunity to experience and participate in the private practice of medicine as an assistant to the physician.

2. To provide the student the opportunity to apply his training, knowledge, and skills under the employment conditions for which he has been trained.

3. To provide the staff with evaluative information concerning the adequacy of the student's training and his performance under the supervision of a practicing physician.

4. To expose the student to all aspects of the practice of medicine in a community and to provide the opportunity for the student to evaluate himself in his own accomplishments and his ability to establish patient rapport.

5. To provide the physician with the opportunity to determine the advantages and method of utilizing a physician's assistant in his practice. He should also be able to determine if the employment of a physician's assistant allows him to see more patients and particularly if he has more time to devote to patient problems which require his highly developed skills, thus improving quality of care.

III. Proficiency Required

1. Patient evaluation and physical assessment through the performance of indepth historical review and physical examination.

2. Performance of routine laboratory studies.

3. Ability to describe accurately and summarize abnormal findings.

4. Ability to establish patient rapport.

5. Ability to do routine procedures, i.e., venous punctures, starting intravenous infusion, naso-gastric intubation, catheterization, subcutaneous and intramuscular injections, etc.

6. First aid (including cardio-pulmonary resuscitation) and triage.

7. Knowledge of the toxic reactions which may result from drugs most commonly used.

8. Ability to operate and repair office equipment.

9. Knowledge of and indications for the most useful laboratory procedures and diagnostic equipment as revealed from the patient's history and physical findings.

IV. Evaluation

1. The physician will complete two evaluation schedules semi-monthly from his observation of the work of the physician's assistant, from discussions, and from checking written reports.

V. Reading Assignments

References will be assigned by the physician. The student will be required to review medical text information at the discretion of the physician.

PHASE III CLINICAL ASSIGNMENTS

Family Planning Clinic

The Family Planning Program is a federally funded program serving residents of Forsyth County who cannot otherwise avail themselves of equivalent family planning services. The program is operated through Bowman Gray School of Medicine and is authorized to offer free pregnancy testing, birth control services including sterilizations, infertility diagnosis and treatment.

I. Content

Students are assigned for two and one-half days a week to the Family Planning Program. Through reading assignments and discussion the student is provided the opportunity to understand the causes/diagnosis/treatment of infertility in the male and female. The various methods of contraception, including the use of hormones, are reviewed. Methods of sterilization of the male and female are considered. The staff reviews with the student a representative sample of cases involving the various types of problems handled by the program. Students participate in interviews, diagnostic workups and treatment plans.

II. Selected reading assignments

Abortion Law - Choice and Morality. Callahan. MacMillan, New York. 1970.
Birth Control and Love. Guttmacher, Best and Joffe. MacMillan, New York. Second Edition. 1969.
Family Planning. Pallock. Brailliere, Tindal and Cossell, Ltd. 1966.
Handbook of OBS and GYN. Benson. Lange Medical Publications, Los Altos, California. Third Edition. 1968.